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AMERICAN BEE JOURNAL  
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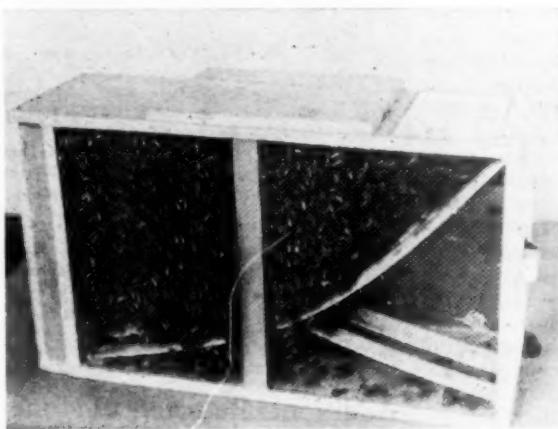
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# AMERICAN BEE JOURNAL

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## Locality Differences in Relation to the Package Bee Industry

By Warren Whitcomb, Jr.

*Assistant Apiculturist, Bureau of Entomology  
United States Department of Agriculture* <sup>(1)</sup>



WITH each new season old beekeeping practices are discarded and new or modified practices replace them. In no other single phase of beekeeping have such striking changes taken place as in the package bee industry. Bee journals for the last three or four years have contained numerous articles on the best size of package to buy, the best time of year to have the packages delivered, and whether or not it would be profitable to kill colonies in the fall and replace with package bees in the spring. During the past year articles have appeared which dealt with locality differences. A final analysis seems to show, however, that all these questions, whether relating to the producer or to the purchasers, whether applied to the North or the South, can be greatly simplified by a study of honey plants in any given locality.

### The Best Size of Package

For many years shippers of package bees kept in stock from one to four sizes of cages in which to supply the demands of their customers. During the past three years this number of stock sizes has been reduced, although most producers still keep both the two- and three-pound

combless cages on hand. Several of the large scale shippers use the three-pound combless cage (16x9x5 1/2") for both two- and three-pound combless shipments. With lower express rates and when the buyer becomes accustomed to the two-pound cluster of bees in the three-pound cage, the package shipper may need to keep only a single size of cage in stock.

The question of cage size or capacity is perhaps satisfactorily settled for the present, but the question of how many bees to the package to purchase is still open.

The United States east of the Rockies is roughly divided by the Mississippi River into two great honey-producing regions. If one disregards the southern package-producing states and takes into consideration only those states in which package bees are sold, it becomes evident that east of the Mississippi River the main honey plant is white clover (*Trifolium repens*) and west of the river white sweet clover (*Melilotus alba*). Buckwheat, fireweed, fruit bloom and similar areas may require a different treatment than the clover areas.

According to data given by Wilson (8)\*, Mitchener (4), Pellett (5, 6), Swenk (7), and Albright (1), there seems to be little variation in the

time the actual honeyflow starts from Nebraska to the Peace River district of northern Alberta. This means that throughout this large area beekeeping practices and manipulations may be considered as similar, and the conditions of the honey plants should not vary greatly. There may, however, be wide variations in two apiaries only four miles apart, and it may be difficult to determine the reasons for these differences. It is probable that conditions are more nearly constant in the sweet clover area than in the white clover area. Mitchener (4) has clearly shown the general conditions in the sweet clover belt, and his data will be used as contrasted with conditions which occur in the white clover belt. To avoid confusion of names, white sweet clover will be referred to as *Melilotus*, the name commonly used in the southern states, and *Trifolium repens* as white clover.

Throughout the melilotus area we find the main honeyflow starting late in June, reaching a peak during July and declining in August. This main flow is largely from melilotus, but it is often preceded by stimulatory flows from dandelion, fruit bloom, willow, thistle and other plants which may start blooming as early as April or May. The season usually closes with the melilotus flow, but in some sections fall plants may supply win-

(1) The Southern States Field Laboratory of the Division of Bee Culture Investigations of the Bureau of Entomology is located at Baton Rouge, Louisiana, and is maintained cooperatively by the Louisiana State University and the United States Department of Agriculture.

(\*). Numbers in parentheses refer to literature cited.

ter stores, although usually not readily salable honey or the best honey for wintering. The main flow in the white clover region starts earlier, perhaps in the middle of May or early in June, closely preceded by short flows from other plants, and ends in mid-July. There follows a period with little available nectar, and finally a fairly dependable fall flow of relatively poor grade honey.

We see, then, that the Melilotus area is characterized by a late flow which lasts over a period of months and is preceded by stimulatory flows over a considerable period. The fall flow after Melilotus is relatively unimportant. In the white clover region we find an early intense flow, also preceded by stimulatory flows from other plants, but so close to the main flow that there is little opportunity for the bees to build up on it.

What does this tell us about package bee practices in these areas? To quote from Mitchener's work on Manitoba conditions (4), which we find are representative of the whole Melilotus area: "A definite understanding of our honeyflow . . . gives us a basis for many of our major operations in the apiary. We have already said that bees received before May 1 produce more honey than bees received after that date. . . . If it takes five weeks from the time the worker egg is laid until the fielder bee is ready to gather nectar, only those eggs laid before approximately May 20 will produce worker bees ready for the beginning of our nectar flow. The importance of receiving our package bees early, so that the nectar-gathering force may be large at the beginning of our main nectar flow, is evident. This is especially important since our main flow gathers force so rapidly, reaching its peak as it does about the middle of July."

Floyd (3) states that the crops secured from two-pound packages received late in April were much larger than those from similar packages received three weeks later. He also says that under Manitoba conditions three-pound packages do not gather such large crops as two-pound packages and are much more likely to swarm. From his work we can conclude that, under conditions found in Manitoba, the two-pound combless package of bees is not only equal, but actually superior, to the three-pound package.

The success of the two-pound package in Manitoba is due to the fact that the main honeyflow comes late in the season and is preceded by smaller flows which permit the package colony to build up to storage strength to meet the main honeyflow. Since the small package needs more time to build up, it must be ordered

early in the season. Also, a three-pound package received early in the season might be expected to reach storing strength before the main flow started, with the resultant tendency to swarm or to hang out and shirk. It is therefore evident that the two-pound package, received early, ships better and is received in better condition than the three-pound package and reaches storing strength at the proper time for maximum returns in the Melilotus areas.

In the white clover areas we find a demand from beekeepers for a different size of package. The honey-flow comes early in the season and is relatively short and intense, so that the beekeeper is rushed preparing bee colonies for the harvest. The package he orders must be large and received early so that it may build up to storing strength for a flow that starts a month or more before the Melilotus flow. The package must compare favorably in size with an over-wintered colony, since in the white clover area careful manipulation is required to reap the maximum crop even with established over-wintered colonies.

The whole question of size of package depends for its solution upon a careful study of the condition of honey plants in a particular locality and upon the time that the package can be received in the spring. Cale (2) states that packages arriving early in the spring can be readily protected from the cold, that they can be hived at leisure and that there is little drifting, since they are thoroughly established in their hives before flights are frequent.

#### Use of Package Bees as a Substitute for Over-Wintering

Another problem which is receiving consideration by beekeepers today concerns the killing of colonies in the fall and their replacement in the spring by package bees. Again, we must turn to a study of floral conditions to aid in finding a solution. In those localities where the winter loss is severe and where the main flow comes late in the season, the killing of bees in the fall and the subsequent replacement with package bees should, under normal conditions, be a paying proposition. We have to take into consideration (1) quantity and quality of honey which will be released for sale, (2) the problem of storage of equipment and stores during the winter months, and (4) the possibility of package bees being able to build up rapidly enough to gather a crop of honey comparable to that gathered by over-wintered colonies.

In the Melilotus area, where the practice of killing colonies in the fall has received most consideration, colonies may be killed early in September. In the white clover area, where,

owing to the early intense flow, the practice is more hazardous, the date for the killing of colonies will depend upon the quantity and quality of the flows following the main clover flow. It is only by a careful study of honey-flow and by considering the cost of packages in comparison with the cost of stores and equipment for over-wintering that a logical conclusion can be reached.

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#### Additional Receivers of Honey for Institute in Minnesota

The following individuals and supply companies in Minnesota have agreed to accept honey from Minnesota beekeepers as contributions for the American Honey Institute. This makes it convenient for beekeepers in different parts of the state to get their contributions to a receiver, and it is urged that such contributions be given at an early date. The suggestion has been made that beekeepers give in the same proportion that they are doing in other states, that of \$1.00 per ton cash or 20 pounds of honey for every ton of honey produced:

P. J. Doll Bee Supply Company, 201 West Broadway, Minneapolis, Minn.

G. C. Matthews, 1012-25 Av. S. E., Minneapolis, Minn.

A. I. Root Company, 290 E. Sixth St., St. Paul, Minn.

M. W. Cousineau, North Dakota Bee Supply Company, Moorhead, Minn.

Standard Lumber Company, Winona, Minn.

B. I. Evans, Windom, Minn.

Earl W. Rood, Mankato, Minn.

M. C. Tanquary, Secretary, Minnesota Beekeepers' Ass'n.



## Passageways

How often do you examine your hives for burr-comb that is obstructing passageways? How much honey are you losing through loss of time caused by obstructed runways? These questions should be asked the beekeeper frequently.

Bees have a tendency to plug things up for their own protection, especially against winter drafts, etc. The wise beekeeper will inspect his hives frequently for this, because he knows his hives will be wintered properly under his supervision.

A good time to inspect and clean one's hives is when putting on empty supers. This gives one a chance to see the blocked runways and clean them.

The hive body is usually the place of most congestion, especially at the top, bottom and between the frames.

The hive tool makes a very effective tool for digging out the burrs.

Clarence Funk, Minnesota.

## How Honey May Insure a Successful Marriage

A Radio Broadcast

By Oliver Hickel  
Missouri

Sh——! Can you keep a secret? I am going to get confidential and tell you something for your ears alone which will help you make your dreams of happiness come true. First let me tell you about the fables of Ancient Mythology, of the quaint and interesting formulas used in olden days to assure the bride of a successful marriage. Even though you are already married, this charm is just as powerful and will work successfully for you too.

Here is the first secret: So that your kisses will be sweet every morning, take a little dip of honey, spread it on the lips and let it stay there

just a moment, then gently rub it off with a wet cloth. Then you will get a reputation for having a wonderful disposition, for only sweet words will pass your lips that day.

On her wedding morn, and every morning thereafter throughout life, have the bride do this and her wedded life will be a sweet and happy one, according to the fables of the bee.

Now for the second secret: In our imagination let us travel overseas and visit the country folks of Ireland. They still cling to the old custom of telling their wishes to the bees so they will always come true, for, you know, they look upon the bees as guardians of the household or domestic gods. Every important event in the family is told to the bees as a mark of courtesy and consideration.

If you want a charm which will keep away troubles from the home, there is an old saying that if you will dip your forefinger in honey and stand in front of your door and move your finger around the outline of the door, you will be protected from trouble entering the household.

Even the ancient traveling entertainer was poetical about bees. Here is one that tells the story:

A maiden, in her glory,  
Upon her wedding day,  
Must tell her bees her story  
Or else they'll fly away.  
Fly away, die away,  
Dwindle down and leave you;  
But if you don't deceive your bees,  
Your bees will not deceive you.

The Honey Man cannot resist the temptation of becoming poetic himself:

You always use white sugar? Go ahead. Don't try some brown, or honey, in its stead. But, your bones will not be strong. And your teeth won't last so long. Still, no doubt, you'll get along. So, go ahead.

## Nectar Dressing— Thanks to "Wesson Oil"!

Honey received a fine boost in the November issue of McCall's, page 42, when WESSON OIL featured Nectar Dressing in a fine advertisement. We tried that dressing the same day we saw the advertisement, and recommend its use for fruit salads. It was advertised as "some thing new, something different, something dainty," and bears repeating in all bee journals. Here it is:

### Nectar Dressing

1 (3-oz.) pkg. cream cheese.  
2 tablespoons honey or 3 of sugar  
 $\frac{3}{4}$  cup Wesson Oil  
1  $\frac{1}{2}$  tablespoons lemon juice  
 $\frac{3}{4}$  teaspoon salt  
Grated rind of one lemon  
 $\frac{1}{2}$  teaspoon cayenne

Beat cheese, honey, lemon juice and seasonings with a rotary beater until smooth. Add one tablespoon

of oil at a time and beat well after each addition until four tablespoonsfuls have been used. Add remaining oil, two tablespoonsfuls at a time, beating until well blended after each addition. Chill. This whips up to a creamy dressing and should not separate if used the same day it is made.

Now, friends, drop the Wesson Oil people a card and tell them how much you like the help they have given honey sales by their recommendation. Their address is 210 Baronne Street, New Orleans, La. And don't forget. When you are in the market for a good salad oil, remember WESSON OIL. One boost deserves another.

J. E. Eckert, California.

## Drifting of Bees

A bulletin entitled "Drifting of Honeybees" has recently been issued by the Wyoming Agricultural Experiment Station. It is by C. L. Corkins, who carried on the work in connection with other experiments already reported.

In order to make it easy to recognize bees which had drifted from their own hives, bees of two races, Caucasians and Italians, were used. Because of the marked difference in color of the two races, it was easy to tell when drifting had occurred. The experiment was carried on for ten weeks covering the spring flow from dandelion, the summer dearth and the main flow from yellow sweet clover.

The results indicate but slight difference in the tendency to drift as between the races and as between strong or weak colonies. The Caucasians showed a slightly greater tendency to drifting than the Italians. The percentage of drifting bees in the apiary was shown to be less than is generally thought and is probably of minor importance.

Those interested in the subject should write to the Wyoming University at Laramie for a copy of the bulletin, which is No. 190.

## "How to Make Honey Cream"

Illinois Experiment Station Bulletin No. 387, "How to Make Honey Cream," is the title of a new bulletin which will soon be available to those who make application to the Office of Information, College of Agriculture, University of Illinois, Urbana, Illinois. This new bulletin will give the approved methods and instruction for the making of this delicious combination of high-test cream and honey developed by Professor Tracy, of the Dairy Manufacturing Division. Professor Tracy gives the results of his experimental work with "honey-cream" and discusses the apparatus necessary for producing it.

# EDITORIAL

AMERICAN  
BEE JOURNAL

## New Year Greetings

Once again the American Bee Journal is pleased to extend to its many readers the greetings of the season. This is the twentieth year of the present editorial management of this publication. In that time we have had many happy occasions. There have been many pleasant meetings with our readers; numerous friendly letters give us encouragement at times when business is slack. Beekeepers as a class are friendly people and they are also cheerful people. We have remarked before in these columns that there is far less complaint among the bee men in these times of stress than among other classes.

Although things do not appear very favorable at the opening of the new year, yet beekeepers should not be discouraged. Our product is one of the rare products which cannot very well become a drug, for it is difficult to harvest it in very large quantities and it will always be comparatively rare. Its advantage as a food is very plain and the only reason why it is not used to a much greater extent is its scarcity.

We still believe in the future of the beekeeping industry. We still advise those who like the work to stick to the bees, and we confidently look forward to better days ahead. Man-made institutions are uncertain, but the sun still shines, the flowers still bloom and nature still gives forth abundantly. The beekeeper finds his work amid pleasant surroundings. The sighing of the wind in the trees above his head, the quiet humming of the busy insects and the pleasant odor of the flowers from which his product comes, all tend to sooth jaded nerves and to quiet the unhappy spirit. Many who have sought relief from the stress and turmoil of the market place have found new happiness among the bees.

For this reason beekeeping will always be a desirable pursuit and the uses of honey will increase as its yield increases. So we are not going out of the way when we make the assertion that the production of honey is just beginning to become popular.

Let us try to forget all the bitterness, all the sorrow and all the suffering that may lie behind us. Let us turn from disappointment and confidently press forward in search of the good things that life still holds for us. Let us thank kind Providence that we are permitted to spend our days among the bees.

We wish every reader a very happy and prosperous new year.

## Disease Control

In this issue is another article about chlorine gas, and we are sorry to say the conclusion seems to be that it offers one more disappointment in our search for a better way to control disease. The presence of disease has been the principal source of loss to the American beekeeper. The total loss through the destruction of property runs into very large figures, yet we have not yet reached the point where we can offer an efficient and cheap remedy.

Whenever a new remedy is offered our hopes rise and eagerly we anticipate a release from the dread which disease holds for us. So many failures have convinced many that there is no other hope than the total destruction of every diseased colony. Such a means may be necessary as a temporary expedient, but we must not cease to search for a remedy which will safeguard the bees and save the beekeeper's property. When it becomes necessary to burn an apiary because of disease, the beekeeper loses not only his current income but also his capital investment. That is too heavy a tax for any industry to continue indefinitely and still prosper. We must use radical remedies until something better is

found, but a better way will and must be available sooner or later. Let us encourage our research men in their search. Disappointment in remedies so far proposed should only increase our determination to continue investigation until the problem is solved.

## Loss of Queens in Packages

There has been so much discussion of supersEDURE of queens shipped with package bees that we wish to call special attention to the short article by Mr. Bowman on page 19. He says that he has no trouble of this kind when hiving the package bees on combs provided with pollen and honey. It is worth while to check up farther to see whether this is generally the case. If losses can be stopped by so simple a method, it will prove invaluable information to the shippers of live bees. The worst drawback to this business has been the loss of queens through supersEDURE. We doubt, however, whether this explanation is sufficient.

## The Wonder Plant

This magazine has given much space to sweet clover, but the subject is certainly worthy of much attention. It is a constantly growing subject in that the spread of the plant constantly extends the area where it is the chief source of surplus honey. No longer is it necessary to apologize for it, as was once the case. It is, however, a source of surprise to find it replacing red clover and alsike clover in the fields of eastern farmers. At times one is led to believe that it may one day become the most important forage crop of the entire United States. When plant breeders turn their attention to developing strains of this plant with finer stems, to make better hay, it will be even more valuable. We have long hoped that someone might find a sport which is perennial in habit and thus provide a permanent pasture plant.

Sweet clover, as yet, has been but little improved and has retained something of its wild character in the ability to look out for itself and thrive freely in waste places. When we remember the good account which sweet clover has already given of itself, we cannot but wonder what it may do when it has received the same improvement that has come to Indian corn through careful selection and breeding.

## The Drifting of Bees

When we speak of the drifting of bees we mean the undesirable occurrence of a number of bees entering the wrong hive at their first flight. This happens when colonies are located too closely together, and especially when one of the colonies contains a stronger force than the other. The bees at their first flight, about a week or ten days after emerging from the cell, are in the habit of flying in a warm part of the afternoon, in large numbers. It is then that they learn to recognize the location of their home. If at that time a larger number of bees fly in front of one hive than in front of its immediate neighbors, the young bees of the weaker colonies are sometimes apt to be attracted by the humming of the neighbors and join them permanently.

Mr. Charles Dadant, who was one of the closest observers we have ever seen, was in the habit of placing each colony under a tree or a bush in such a way that the bees of each colony would readily recognize the spot and return to it. He would also, sometimes, place hives back to back, so that the bees in their first flight would have no opportunity of mixing with the bees of other colonies.

A man cannot recognize how much bees are likely to mix from one hive to another until he keeps bees of different races and of different colors. In that case he will discover, with astonishment and sometimes with dismay, that some of his best and purest colonies contain bees from inferior ones. He will be unable to understand it until he sees that —vice versa—some of his dark colonies will also contain bees that have joined those hives from his brightest stock.

The greatest unpleasantness, in the drifting of bees, comes when a young queen enters the wrong hive after her wedding flight. Usually, if the colony she enters is queenright, she will be killed at once. Our novices might think that all bees that make a mistake and enter a hive which is not their own would be killed at once, but such is not the case. Many bees are attracted by other colonies, especially at their first flight, and nothing happens, because they are coming with others of their age and because the colony at that time is not on the lookout for robbers. But it is always desirable to prevent what is commonly called "drifting."

For this purpose it is well to paint hives of different colors, to turn them in such a way as to make the neighboring colony less apparent to them and to put the hives as little as possible in an apparently similar shape or position. Drifting must be prevented as much as possible in a well managed apiary.

## Why the Suspicion?

Reports from beekeepers indicate a surprising amount of suspicion of extracted honey. We have always had to combat unfortunate publicity to the effect that honey is commonly adulterated. The fact that honey was once very commonly mixed with cheaper ingredients long ago became known to the public. Since the pure food laws have been so effectively enforced there is very little such adulteration. Nevertheless the suspicion persists and in many localities it is difficult to find sale for liquid honey.

Reports coming to this office indicate that this suspicion is rather more common this year than heretofore, and we are at a loss to explain it. One beekeeper reports to us that he made a long trip trying to market liquid honey, with little success. A few days later he drove over the same route with bulk comb honey and sold it without much trouble.

It would seem that after all the years of effort the public might come to understand the fact that liquid honey is just as pure as honey in the comb. The question arises as to whether the beekeeper may not himself be responsible for some of this suspicion. It is a serious handicap to the industry and every effort should be made to acquaint the public with the nature of our product, its method of production and handling and the reasons for confidence in its purity.

## What of the Future?

These are times of rather anxious questioning as to what the future may offer. For years past every effort has been put forth to secure larger production and higher specialization. Larger factories, bigger farms, more extensive apiaries. Larger volume at less cost per unit has been the slogan for everybody. Such high pressure production was bound to result in a top-heavy structure and an output beyond our needs. Now that the crash has come we all want to know how to recover our lost prosperity.

There is an old adage that "for every action there is a corresponding reaction." We have every evidence of the truth of that statement. In the years from 1920 to 1930 there was a constant exodus from the farms to the cities, in search of higher pay, shorter hours or more entertainment. Millions made the change. We are told that in the past two years equally as many have returned to the country as left in the ten-year period. The big farms are being divided up again into smaller ones and specialization has given place to the old-time self-supporting home.

We have followed the trend of the times and encouraged specialization in beekeeping. We thought that more honey produced by fewer and better beekeepers would

be good for the industry. It has had the opposite effect. When the small beekeeper lost interest and dropped out the industry lost the benefit of his enthusiasm. The commercial honey producer has no time to stimulate interest in his product on the part of the public. He produces honey by the carload and ships it to the market centers. Without the help of the enthusiastic backlotter he loses contact with the consumer. Sideline beekeeping is coming back and we believe that it will be a benefit to the big producer. The hundreds of small producers are the ones who keep the public interested. They sell more than they can produce.

## Moisture in the Cellar

The correct amount of moisture for cellars where bees are wintered offers a perplexing problem. Because of the difference in drainage, in kind of soil and other local conditions, it is impossible to lay down any hard and fast rule about construction of cellars for wintering purposes.

The late J. L. Strong, of Clarinda, Iowa, a very careful observer, called attention, many years ago, to the fact that it was sometimes necessary to provide the bees with water to keep them quiet in the cellar in western Iowa. Other commercial honey producers in the Missouri River Valley have reached the same conclusion. Some provide the needed moisture with a wet sponge or a small piece of ice at the entrance of the hive.

Like the question of temperature, the attitude toward moisture will depend greatly upon location. Too much moisture in a warm cellar will result in badly moulded combs and much loss when the bees are removed in spring. The writer has seen combs so badly moulded that they were almost entirely torn down and rebuilt. This is a very difficult task for a weak colony of bees in early spring, when brood rearing should be carried on at a maximum rate.

Some beekeepers have found that it is possible to quiet restless bees in a warm cellar by providing them with water. A difference in humidity changes the requirements as to temperature. Wrong temperature may sometimes be corrected to a limited extent by control of moisture. At any rate it is better to have the cellar too dry than too wet.

## Cellar Wintering

It is interesting to note that Prof. Corkins found that the bees wintered better at a lower cellar temperature than generally recommended. These Wyoming experiments were carried on under different climatic conditions than those on which the usual advice is based.

It has been previously noted in this magazine that the bees are quiet in the cellar at lower temperatures as we move westward. The probable explanation is the difference in the humidity of the atmosphere. The more humidity, the higher the temperature necessary to keep the bees quiet in the cellar.

It is never safe to depend upon the recommendations of those who operate under different climatic conditions. We feel very sure that disastrous results would come of wintering in cellars at such low temperatures east of the Mississippi River. After all, the safe plan is to leave it to the bees. It has often been pointed out that the correct cellar temperature is the one at which the bees are quiet. Just what that temperature will be will vary under different conditions. We do not question the Corkins conclusions under Wyoming conditions, but the temperature is too low for Illinois, and worse yet for New York.

There was a great deal of discussion of cellar wintering in the bee magazines of years gone by. The general conclusion was that 45 degrees was right. When beekeeping became important in the plains region it was found that this temperature was too high for the Dakotas and western Canada. It was also found too low by those experimenting in the government laboratories at Washington.

Results of experiments so far announced indicate that about 50 degrees is the correct cellar temperature for the eastern states, 45 degrees for the Mississippi Valley, 40 degrees for the Missouri Valley, and perhaps 35 degrees for the Rocky Mountain region.



Sweet clover on the Oregon Experiment Station Farm, at Corvallis

WE are almost tempted to say that the Willamette Valley and possibly the other portions of northwestern Oregon are about to witness the most remarkable change in honey flora which has ever occurred in the history of this section. We refer to the new disease-resistant strain of white sweet clover which has been developed by the Oregon Agricultural Experiment Station and the United States Department of Agriculture, largely through the efforts of Mr. H. A. Schoth.

For a long time it has been known that sweet clover would not prosper here in the Willamette Valley, largely due to a disease commonly known as stem-rot. Back in the year 1921, Mr. Schoth had occasion to observe a few straggling plants of white sweet clover which came through resistant to this disease and survived among others which perished. Seeds were saved from these promising plants. This seed was planted and from it were produced other resistant plants, which in turn yielded an additional supply of seed. As the years went on, this supply of seed increased and the plants continued to show their resistance to disease, even when the seeds were planted in soil known to be contaminated and alongside of other plants which were not disease resistant and which in turn died from the disease.

A few years ago this seed was produced in quantity enough that small amounts were parceled out to selected farmers for further careful study. This past summer hundreds of pounds of this seed were produced and will be available for sale. Even with this larger amount available, the supply is still limited. It is expected that one farmer alone will be able to produce this year in the neighborhood of 10,000 pounds from seven acres. Since it is customary to sow fifteen pounds to the acre, a little arithmetic will show us that from this seven acres of sweet clover seed there will be produced enough

## A New Sweet Clover for Western Oregon

By H. A. Scullen  
Oregon

*Not a new clover, but a disease-resistant variety, discovered by H. A. Schoth. This comes on the heels Alpha-Clover, told by Bowman in December. Perhaps the two will become major honey plants of the Northwest.*



H. A. Schoth, largely instrumental in developing the disease-resistant strain of sweet clover.

seed to sow something over six hundred acres.

Now, what do the bees think of this new clover? In late July the writer visited a small patch of this clover on the East Farm of the Oregon Agricultural Experiment Station, which was at that time slightly past its prime in blossom. At no time has the writer ever seen bees working so industriously upon blossoms of any kind as was true in the case of this clover. The clover was simply roaring from their activity. This patch of clover was practically through blossoming in the middle of August, but on patches pastured back the blossoms continue for a much longer period. This means that our bees, which will have the hairy vetch and alsike clover as a surplus flow during late May and early June, can, as soon as those plants have given out,

give their attention directly to sweet clover, which will carry them on through into August and possibly into early September.

For many years we have hoped to find some plant which would tide over the dearth of nectar during July and August here in the Willamette Valley. Now it seems that our dreams have come true through the efforts of our friend Mr. Schoth, who, by the way, is himself interested in bees and has a limited number of colonies.

Another question which may occur to us is: What are the farmers going to do about this new strain of sweet clover in the Willamette Valley? Mr. Schoth tells the writer that the roots of this sweet clover penetrate through the subsoil to a considerable depth, breaking it up and carrying in organic matter in a way that is not true of any of the true clovers like alsike or red clover. In other

(Turn to Col. 3, next page)



This new disease-resistant variety of sweet clover may mean new life to the honey production interests of the great Northwest.

## Special Cell-Building Hive



In queen-rearing it is something of a problem to get large batches of cells well cared for in early spring. The picture shows a special cell-building hive in use in the D. D. Stover apiaries at Mayhew, Mississippi. The double walls with room for heavy packing overcomes the tendency to cool off quickly with every cold snap. The large size with twenty frames makes it possible to maintain very large clusters of bees, which are able to care for big batches of cells. It will be seen from the picture that two inner covers are used, each covering one-half of the frames. At the back of the hive is a division board feeder. Just above this feeder is an opening such as is used for bee escape. The opening is covered with screen to prevent bees from flying out when the outside cover is removed. It also prevents robbers from getting into the hive. The opening is used to pour in feed without removing the cover or disturbing the bees.

This hive has several features which are valuable to the queen breeder. It offers much extra protection from cold, provides room for a big colony of bees for cell building, and permits feeding in safety without opening the brood chamber.

### Honey-Fruit Salad

Cut the amount of fresh fruit desired into a bowl, using any fresh fruits, such as peaches, oranges, pears, bananas, cantaloupe, cherries and apples; dates and nuts if desired. Mix well and add a slight amount of lemon juice. Drizzle honey over salad and let stand in a cool place for one hour.

### New Sweet Clover for N.-W.

words, this plant promises to be a wonderful soil builder for the Willamette Valley. It has also proven of great value as a pasture plant here in the valley and grows readily on high, unirrigated land. With these plain facts before them, there is no question but that the progressive farmers of the Willamette Valley will take advantage of this new plant as soon as seed is available. Furthermore, much of the waste and unused lands along rivers and elsewhere will ultimately become seeded more or less by volunteer sweet clover plants.

Well, just to conclude, we simply can't help but get a little bit enthusiastic about this new plant. Then some chap has to come along and ask about the present price of honey. Well, if we can't control the price of honey, maybe we can at least help in some way to cut down on the cost of production, and it looks like this new sweet clover will help.

### How One New Yorker Does It



Fred D. Lamkin has about seven hundred colonies of bees at his home in Poplar Ridge, New York. There he produces from sixty to one hundred thousand pounds of honey each year. With clover in early summer and buckwheat in late summer, he has two chances to get a crop.

While part of his crop is sold in car lots to New York dealers, he has a roadside stand near his home, and there he sells in small containers to passing motorists during the summer months. The stand offers an outlet for cherries, berries and other fruits as well. When the bees are put

away for winter, Lamkin and his wife go to Florida for the winter. The picture shows how he puts in the time in Florida. He buys orange honey at wholesale and puts it up in the glass containers for retail sale. He gets 30 cents for a pound jar and a dollar for a five-pound pail. In this way he occupies his time and provides for the expenses of the winter trip. The stand shown here is on the main highway from Tampa and Plant City to Lakeland, Florida. There are hundreds of locations where large quantities of honey could be sold at roadside stands.



## Cut Comb Honey With Modified Dadant Hive



By Carl G. Rhapstock  
Wisconsin

DURING the past two or three years considerable interest has been shown by beekeepers throughout the Middle West in the production of so-called "cut-comb" honey—that is, honey which is produced in shallow frames, cut into chunks and put up in cellophane packages. There are certain advantages to be had through this method of producing comb honey: (1) The bees take far more kindly to the shallow frames than to the small sections. (2) Larger yields are obtained with less attention and effort on the part of the beekeeper. (3) Unfinished combs may be readily extracted. (4) There is less initial expense in the matter of equipment. (5) There are no stained or propolized sections to be cleaned. The disadvantage lies in the, at best, somewhat messy job of cutting and packing the honey.

How does this method of producing comb honey fit into the Dadant system of beekeeping? The answer is, I believe, that it fits in far better than section comb honey does. The Modified Dadant hive has always been most successful in the production of extracted honey. The bees, when provided with a large brood chamber, are reluctant to enter supers filled with small sections. However, when we use the shallow frame as a unit, the bees enter the supers quite as readily as they do the extracting supers.

The 5% grooved top bar frame is used for cut comb honey. There is, so far as I know, no factory-made super of this depth, fitting the Modified Dadant hive, on the market today. But don't let that detain you. Twenty cents spent for lumber, three cents for the tin rabbets and a few hours of your spare time this winter with saw, chisel, hammer and a rabbit plane will produce a lot of fun and some very presentable supers, equal to the factory made, with dovetailed corners, hand holds and all. The regular ten-frame shallow supers with cleats fastened on the sides may be used also, although somewhat unhandy to tier up.

It would be a great help to the cut-comb honey producer if some manufacturer would come out with a 5% frame which had a 1½" or 1 9/16" spacing. The regular 1% spaced frames, if crowded tightly together, give a rather lean chunk of honey. And, if the frames are spaced loosely, they are inclined to wobble, when the supers are handled, to the detriment of the comb. However,

after the bees get through daubing propolis along the edges for a year or two they are spaced about right.

One more word in regard to equipment, and the most important—FOUNDATION. Use only the best thin surplus foundation, full sheets size 4 ½ x 16 ½", and be sure that you do a good job with the wax tube fastening them in. Do not use sheets that come down into the slotted bottom bars, if you use that type of frame. For extracting frames, with wired foundation, that is fine; but not for thin foundation. The bees fasten the sheet at the bottom and then a big bunch of bees get on one side some good hot summer day and your sheet of foundation stretches until it resembles a sail in a good stiff wind. And if anything will give one the jitters, it is to pry a super loose and find that some of the foundation has come partly loose on top and has bent over and some of the sheets have bowed out like a rainbow and then the bees have made the best of a bad situation and filled the super full of honey. Oh! what a mess! It is enough to make any beekeeper feel like going into the real estate business or something.

Now as to seasonal management: All the things which have been reiterated time and time again in regard to the production of extracted honey go for cut comb too, only more so—young queens, strong colonies ready at the beginning of the honey-flow, etc. As I produce both extracted and cut-comb honey, I make a practice of putting on a super of drawn comb just before the flow begins, and when the bees are working in good shape raise it and slip a super, prepared for cut-comb honey, underneath. However, the bees enter such a super readily without the use of the first super of drawn comb. In this locality the flow often begins in June with dandelion and wild cherry mixed in with the early clover. If part of a frame is filled with this dark golden-colored honey and the remainder with white honey, the result is a piebald effect. This is overcome if the first of the flow is extracted. At the close of the clover flow, if followed by another and darker one, the same procedure is indicated. Do not give too many supers of foundation near the end of the flow, or you will have a lot of half-filled frames. It is better to add an extracting super on top and reduce down so as to catch the mixed honey in this super.

With the Modified Dadant hive I seldom use an excluder. If full

sheets of foundation are used, the queen will show but little inclination to come up into the supers; but if only starters are used, look out. You are almost certain to have drone-comb and drone brood to spoil your honey.

A word about section honey might not be amiss right here. If you would like to produce a few real choice sections along with your cut-comb honey, here's how. Use the 4x5" plain section. I think they make the nicest appearance anyway. In the center of a super place four or five section holders complete with sections and starters, with fence separators between. Rip the little pieces which run up and down from one side of each of two fences and place them on the outside of the sections, with the smooth surfaces next to the frames with which the super is filled out. Place these supers on good, strong colonies and you will be surprised at the percentage of nicely finished sections.

As to comparative yields of cut-comb and extracted, I can give no definite figures. As was mentioned before, I run for both with the same colony. A few colonies run exclusively for comb the past season averaged 80 pounds. A slightly larger number run for extracted honey gave 71 pounds. The majority, run for both, averaged a total of 126 pounds, of which 58 pounds was comb. However, although these figures really mean very little, I believe that the difference in yields is small.

Now that you have your crop, what then? I believe the best place to store the honey is right in the super until ready to cut and deliver to the grocer or consumer. There are several packages on the market today made especially for cut-comb honey. Mr. Hilbert of Michigan, Mr. Aeppler of Wisconsin, and Mr. Reif of Iowa all put out packages. Select the one you like best. The honey may be cut in several ways. If only a little is produced, a hot butcher-knife will serve the purpose. Mr. Hilbert has a five-bladed knife made for the purpose. In the May last issue of the American Bee Journal, I described an electric device which I use. Take your choice. But DRAIN WELL in a good warm room. If you want to produce cut-comb honey that the public will buy, hang this motto over your work bench: DRAIN WELL!

[See our comment on page opposite, Ed.]

## Taking the Sting Out of the Jewelry Tax



This picture, put out by a jewelry company in New York City, was sent to retail jewelers throughout the country. Two copies of it have been sent here, one by C. H. Watson, Andover, New York, and the other by Alex Bozant, San Francisco, California. Obviously the public does not yet know the anatomy of the honeybee well enough to locate the sting where it belongs. We wonder how many jewelers recognize the mistake? These two did, but both of them are beekeepers.

It is evident that the public, as a whole, knows very little about beekeeping as an industry. It is full of possibilities of interest for people, but we did think most everyone was acquainted with the location of the sting. Perhaps there are some disadvantages in living in the metropolitan city of New York which even the most country-minded of us cannot appreciate.

### Why Not Use the Regular Modified Dadant Super, Mr. Rhapsstock?

The article by Carl Rhapsstock on the page opposite is a fine, practical one, but why not use the regular Modified Dadant depth super for chunk or cut-comb honey? The thin surplus foundation for the frames of this super is five inches deep and slips into the open wedge space of the top bar, where it is held with hot wax. I judge there would not be a bare half inch difference in the width of the finished comb between this super and the one Mr. Rhapsstock uses.

Several Iowa beekeepers use the Modified hive for cut-comb and chunk honey and produce this kind of honey in commercial quantities. We are particularly acquainted with the management of Newman I. Lyle,

at Sheldon, Iowa, president of the Iowa Beekeepers' Association, and hope to tell about it in the February issue.

### That New Alpha-Clover

Such a flood of questions have come in about the new Alpha-Clover reported by A. W. Bowman, page 475, December, that we are fearful Mr. Bowman will be burdened with mail. We have no information about the new plant other than that reported in the article, and we suggest that those interested address their inquiries to the University of Saskatchewan, College of Agriculture, Saskatoon, Saskatchewan, Canada.

### Honey Aboard New Salesman's Ship

By C. M. Littlejohn  
Washington

Displays of honey produced in the Pacific Northwest, attractively arranged aboard a new type of salesman ship, are alluring the buyers of the Gulf ports, the Caribbean, Central and South America, as crowds flock on decks as the unique exhibit ship from the Northwest touches Spanish-speaking ports of the tropics this winter.

Honey, amidst other proud products of the states of Oregon and Washington, will demonstrate the prowess of the Northwest on this cruise of the Point Ancha, first salesman ship, or show boat, exhibiting in a unique manner merchandise that may be sold about the tropics.

The steamship Point Ancha, of the Gulf-Pacific Mail Line, sailing late in the fall from the Northwest, will make fifteen ports of call in the Caribbean, West Indies, and Central and South America. It is laden with many foodstuffs and manufactured products 'tween decks and on table space.

Business men and buyers will visit the ship at these ports of call, examine the honey products and other wares, receive the literature printed in Spanish, and talk in Spanish with the Americans in charge of the displays. These representative business men of the South will be invited aboard and conferences will be held with Chamber of Commerce officials over the extension of markets at Cartagena, Puerto Colombo, Port-au-Prince, Vera Cruz and other well-known ports of mid-America where the Point Ancha drops anchor and prospective consumers swarm aboard.

There were more than two hundred merchants and buyers of Balboa, Canal Zone, visiting the exhibits on the show boat at its recent call; and in addition to these commercial

visitors there were government officials and more than a thousand school children and other persons calling to examine products on the first salesman ship, attracting almost as much attention as the historic ship of Columbus when it first reached the Americas.

Inasmuch as the names of many merchants interested in Northwest products viewed have been secured, a new volume of business and the extension of markets in the tropical ports and adjacent regions will soon be developed by the three months' cruise of the spectacular show boat.

### No Cats Are Missing

By Frances G. Turrell  
Indiana

Homer, just a little past half past three, came into the kitchen one day where his mother was working with tomatoes. At each step a sniff and then more sniffs, for the fragrance of nearly done catsup filled the air.

"What you making, mother?"

"Catsup, sonny boy," answered mother.

"Catsup, catsup?" he asked, as if he could hardly believe his ears. "Catsup?"

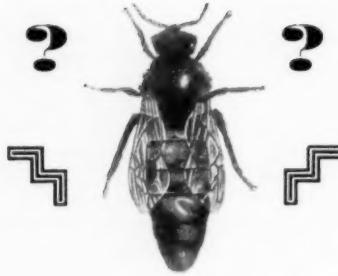
"Yes, don't you remember how good it was last year? When I was a little girl we called it catchup and ketchup, and sometimes catsoup, but it always tasted so good."

Homer disappeared and mother, busy with her work, did not note the passing of time until he came back, looking very much puzzled, and finally asked:

"Which one of the kitties did you use, mother? I hunted 'em and they are all here."



He was in fear that mother, in her efforts to have a change in soups, had used one of his pets. He had rounded up his five cats, naming them, as he was not yet able to count, and had searched until he had found each one.



## The Bees of the Future

(Excerpts from an article in the Scottish Beekeeper)

By H. J. Wady  
England

**W**HAT is our guide in the breeding of bees? Have we a clear notion of the ideal bee we want, or are we just keeping bees with no wish for better bees? Shall we assert the ideal bee to be one which will never swarm; will live twice as long; will never sting or rob; will never gather honeydew or propolis; will be proof against disease? By the time we have made progress in these directions we may find that changing conditions have rendered futile some of our proudest achievements and have raised a set of new obstacles to be overcome.

It must be remembered that the constant persecution of any living thing by a host of natural enemies and climatic or other conditions is more beneficial than a too sheltered life; but, from the viewpoint of man, it is likely to produce stock with concentrated powers of resistance yet of little profit.

In his exploiting of other form of life, man is Nature's greatest parasite. By selective breeding, taking advantage of constant variations which occur in every form of life, man has so far "improved" plants, birds, animals and insects that they would be quite incapable of living independent wild lives under any condition on this earth. There are cows giving record yields of watery milk or small yields of good milk with high butterfat content, or still smaller yields of milk but with carcasses of beef, while pigs are so bulky that a brisk walk of fifty yards would kill them.

These creatures have survived only by constant protection from their natural enemies, and their resistance to cold or disease is also impaired. Similarly, creatures or plants which by accident or intent have been marooned on small islands have been known to adapt themselves and change their mode of life so much that they would be incapable of surviving in their original environment if returned to it.

In a natural state, over-specialization is corrected by selection and eventual extinction, since sudden changes or appearance of a new enemy finds the over-specialized types unable to adapt themselves to new conditions. Adaptability is the commonest and most valuable mani-

festation of evolution. The loss of Nature's safeguard necessitates the introduction of artificial protective and corrective measures.

When Nature finds a species on the border of extinction through degeneration, epidemic, or changing conditions of life, she tries to save a remnant by breaking up the species and experimenting with new types, on the chance that one or more may survive through renewed stamina or immunity to disease.

Nothing in a wild state which loses any faculties can be certain of eventual survival. New enemies, parasites or conditions arise periodically, calling for the exercise of such protective faculties. If they have become atrophied—disaster! If the loss is not irrecoverable there is hope, as in the case of the New Zealand kia, which had given up using its wings when first decimated by new enemies—white men with guns. It has now saved itself from extinction by regaining the power of flight, and so has escaped the fate of the dodo, which had not time to learn the danger of man before it was exterminated.

The elimination of the unfit, as carried out by Nature, is too costly, on first sight, to be permitted to function with creatures under man's cultural conditions, yet not infrequently it proves the only final and safe court of appeal when artificial safeguards have all failed.

Adaptive and corrective evolution must be ignored by the serious breeder, whose failures may often be traced to "pursuing a rabbit right down a snake's gullet"—that is to say, aiming for an objective and ignoring danger on the way. Really, the Creator's provisions for the perpetuation of species display a far deeper knowledge of genetics than is often realized.

The concentration of bees in apiaries, wheat in hundred-acre plots, sheep in flocks of thousands, is the source of much of our trouble. Yet to feed our cities it is unavoidable to practice intensive cultivation and so to break one of Nature's first laws, which provides that bees should exist as isolated colonies in scattered trees, sheep to live in tiny flocks with six to eight miles of free range, and our corn to be an occasional grass. To

intensive cultivation may be attributed disastrous epidemics and many endemic troubles, and I appeal to beekeepers to spread their hives over the available land, rather than to crowd them into tiny plots of ground.

Considering the selective breeding of bees, we must give first place in our list of qualities to general stamina, hardiness, and disease resistance. Without this our breeding stock may not survive long enough to show progress in other directions. Utmost caution must be exercised so that virility is not sacrificed in favor of some less essential characteristic, such as color or gentleness.

The economical production of honey being our main objective, working qualities may be considered next. It is observed that certain strains of bees are able to work and store surplus during unfavorable weather, while others will starve. Yet, given a good season, the latter will so take advantage of a heavy flow that they store a far greater quantity of nectar in a given time than the former. Records may easily be taken of colonies with an average over five years and may be lower than that of less spectacular colonies. Again, overworking during bad weather may easily be a fault, for the death rate among foragers may deplete a colony on the eve of a good flow. It is good advice, therefore, to avoid extremes and let consistent averages over-ride spectacular performances.

Seasonal rearing of brood is a trait of great importance. To raise large quantities of young bees before the honeyflow, without any stimulation to keep up a reasonable but not excessive amount until autumn, and to know when to leave off, is invaluable. Some bees are too sensitive to stimulation, breeding on a large scale on the strength of a light flow of only one pound per colony.

What is the ideal egg production for our queens? It can't be too great at the right time. The colony can't have too many foragers at the time of the honeyflow. Persistency of fertility and long life may largely be influenced by cultural conditions in the case of the queen, but long life in the case of workers must be considered. To raise a worker bee takes twenty-one days and a lot of

food, whether she works three weeks or six weeks.

The elimination of swarming by selective breeding has been freely discussed. Some breeders, including the writer, have attained gratifying results in this direction. Our own way is to obtain several successive generations of natural supersedure queens from colonies which have not swarmed for some years, and to mate them with drones from similar colonies. Twenty such queens were in use in 1931 and not one of those colonies made preparation to swarm.

We are all familiar with the way a swarm works. For a few weeks after hiving, a good swarm works with a vim which seems greater than that of colonies which have not swarmed and sometimes yields exceed that of old colonies. It might be that swarming is in a sense an outlet for an almost lost sexual impulse, a racial memento of the days when all workers mated and laid eggs. The mad whirling ecstasy of the swarm with its complete holiday may satisfy some craving for mating flight on the part of the workers. Swarming is a primal urge and its ultimate eradication is improbable. It may be stated, however, that it can be considerably weakened by intelligent management.

The disposition to sting may be controlled without much difficulty. There is an old fairy tale that most vicious bees are the best workers. Sometimes a vicious lot will do well because they are left alone at the critical time. Sometimes a gentle strain will be lazy, and it should be recognized that the Carniolans or five-banded goldens are productive in some places and a dismal failure in others. All the best crops I have seen have been from reasonably gentle bees, and I would not tolerate a vicious bee for a moment.

That much debated point, color, must be mentioned briefly. For the practical purposes of gathering, it does not make a bit of difference whether bees are black, yellow, brown or pink, but if purity of race and distinction of strain are of value, as we know they are, a distinct color can be used to denote purity of mating. In certain strains other qualities accompany certain colors in definite proportions, such as the working of sections.

The Ideal Bee, like such other quests as the Holy Grail or the Golden Fleece, will only materialize perhaps in our dreams, but better bees we may certainly hope to see.



## Improving the Race of Our Bees

By C. P. Dadant

**I**N the domesticating of all living beings, we try to improve the race. We want the cows to yield more milk, the horses to be apt to draw larger loads, the hogs to produce more fat. We want our bees to produce more honey. These results are obtained by selection.

In beekeeping, however, selection of the males, the drones, is not so easy, for the mating of bees takes place in the open air, as far as a mile or two from the apiary, and on the wing. For that reason, drones are reared in immense numbers in every colony.

Some of our beekeepers imagine that drones are needed in summer to keep the hive warm and that this is the reason for the production of such large numbers of them. This is a mistake. If the production of warmth was the aim, why should the workers destroy them when a change in the weather chills the atmosphere?

No! Drones are reared in large numbers because every colony needs them to fertilize the young queens, and the bees do not realize the possibility of the drones of one or two colonies in each location being sufficient to fertilize all the young queens that may be reared.

In every colony, in a state of nature, about eight to ten per cent of the combs will be built of drone-comb. When a swarm is hived, the bees go to work and build worker-combs at first for the queen to lay in. But when they have produced enough worker-combs to satisfy the requirements of the queen, they begin to build drone-combs to store honey. Thus the combs nearest to the outer edge are usually drone-combs. When summer comes again, the queen, after filling the worker-combs several times over, finally fills the drone-combs, and it is not unusual to see from 2,000 to 5,000 drones reared in every colony containing a healthy queen. It matters not whether such colonies are of the best.

To improve the race of our bees, it is necessary to rear drones only from some of the best honey-producing colonies. But in ordinary conditions, not only do we allow our

bees to rear drones in every colony, but the colonies of our neighbors, which are perhaps of an inferior race, are allowed the same privilege, and, since queens and drones will fly a mile or more, there is a chance for some of our best queens being mated with undesirable drones.

There is a possibility of producing only desirable drones if we go at it properly. Our colonies should be overhauled early in spring and the drone-combs removed from such colonies as would produce undesirable drones. There is an economy in this both ways. We prevent the mating of our queens with drones from inferior colonies and we cause a saving of honey by preventing the existence of such a horde of consumers. It is true that we cannot do away entirely with undesirable drones, because there are always a few corners where drone-combs exist, but the numbers thus produced are dozens or perhaps hundreds, and not thousands.

Now as to the drones produced in our neighbors' apiaries: It becomes advisable for us to help them improve their bees, for if they have good colonies the drones which they will rear unintentionally will help improve our own bees, and they will have tens of thousands of these, since the average bee owner does not pay any attention to the number of drones that his bees rear. Our method has been as follows:

During the busy season we rear a number of queen-cells from our best queens by the artificial cell method, putting those queen-cells in a strong, queenless colony. On the ninth day after the queen-cells are started, we go to the neighbor and tell him what we are doing so as to improve the stock of bees in our vicinity and offer to Italianize his bees by killing the black queen and the next day introducing one of our choice queen-cells in that colony. We never failed to get his agreement at some price. At first we charged one dollar per colony thus Italianized. Later we cut the price down to 50 cents and then to 35 cents.

By this method we secured first-class colonies in all the vicinity. One not only secures good bees for the future matings, but one also does good to one's neighbors. It is profitable in every way.



L. W. Hendrickson stirs up a batch of Hon-E-Jax, his new honey-popcorn-peanut confection.

HON-E-JAX is the newly coined, about-to-be copyrighted name of a new popcorn-peanut-honey confection. The inventor of the name and the manufacturer of this tasty honeyed popcorn specialty is Mr. L. W. Hendrickson, of Seattle, Washington. The new honey product was put on the market early in February, and by the middle of the month had become the most popular item sold at Mr. Hendrickson's little shop.

The development of the recipe for making HON-E-JAX took place in a roundabout way. All of his life, Mr. Hendrickson has been interested in popcorn. He has raised popcorn, sold popcorn, and used it in numerous confections. It was not until 1929 that he was able to start business for himself. Then he began the manufacture of popcorn balls and other popcorn specialties, including a confection made of popcorn, peanuts, and a molasses syrup as a binder. He established his small shop in San Francisco, but due to a poor location found that it would not pay. In 1931 he moved to Seattle, carefully selected a location, and began making and selling his buttered popcorn, popcorn balls, and popcorn-peanut confection with both a molasses and a caramel syrup as a sweetener and binder. However, competition was keen and Mr. Hendrickson realized that if he was to make headway he must put out a product that was superior to any other popcorn specialty on the market. Molasses-flavored and caramel-flavored popcorn balls were being made and sold by several other concerns. What different binder might he use that would make a product superior to both molasses and caramel and yet meet with popular approval? Mr. Hendrickson thought of honey.

After many weeks of experimentation with different flavored honeys

## Hon-E-Jax and Its Maker

By Natt Noyes Dodge  
Washington



The little shop in Seattle where Hon-E-Jax is being made and sold

and with all sorts of variations of his recipe for making the binder, Mr. Hendrickson finally perfected a honey-made syrup which acted satisfactorily as a binder and sweetener for his popcorn balls and the popcorn-peanut confection. That it is superior to either the molasses or caramel is definitely proved to Mr. Hendrickson's satisfaction by the fact that, with the three flavors selling at exactly the same price, at the end of two weeks after the introduction of the honeyed popcorn 95 per cent of his trade asked for the honey-made product. Then Mr. Hendrickson began to get enthusiastic about honey. He coined the name HON-E-JAX for the honey-popcorn-peanut confection and laid plans for expanding his business.

Mr. Hendrickson's first love, popcorn, is now being crowded for the major share of his affections by his new honey. His little store is showing a tendency toward becoming a honey specialty shop instead of a popcorn dispensary. A display case of live bees occupies a prominent place in the front window, the glass of which is adorned with large HON-E-JAX stickers. Smaller signs within explain that HON-E-JAX is "buttered popcorn and peanuts covered with pure honey" and that "we use fifty pounds of honey each week in making our delicious confections." An attractive display of the new product is temptingly arranged on a large platter just inside the window glass. Mr. Hendrickson is talking about honey jelly, honey-coated nuts, and honey-glazed fruits as additional lines. While he is busy in the back

of the shop stirring up another batch of HON-E-JAX, his attractive wife waits on customers and tells them some of the health advantages of honey-made products. Three salesmen, enlisted from the ranks of the unemployed, are making a living selling HON-E-JAX from house to house in the residential districts.

Regarding his new product, Mr. Hendrickson has this to say: "Honey has a very strong popular appeal. There is something romantic about it that attracts. But I find that there is considerable suspicion of the purity of honey. I use every opportunity emphatically to contradict this impression. I believe that there is an enormous future for honey-popcorn combinations, and if my business develops here as it now gives every indication of doing, I shall make every effort to expand by establishing shops in other cities. Honey is a very different material than molasses, and recipes for molasses popcorn balls cannot be satisfactorily used by substituting honey. Caramel syrups for popcorn balls leave much to be desired. Honey is the answer to the question, 'How may a superior popcorn ball be made?' Honey has certain characteristics that require special care in preparing a syrup by its use. Here are a few of them:

"1. Honey scorches easily. The syrup must be made in a manner that will avoid scorching.

"2. Overheating causes honey to lose its flavor. Since the honey flavor is the big factor in the popularity of a honey-made confection, precautions must be taken to preserve all of this flavor possible. The stronger the honey (pleasing flavor of course), the more desirable for use in popcorn confections.

"3. Honey absorbs moisture from the air. Popcorn balls and confections made with honey should be kept in a dry atmosphere or in an airtight container. They will then keep indefinitely.

"Because I am interested in greater popularity of honeyed popcorn products, I shall be pleased to learn that beekeepers are using honey in making their own popcorn balls and confections at home. My recipe for the making of the honey syrup binder for this purpose must, of necessity, be kept a secret, but I shall be glad to correspond with any beekeeper who cares to write to me, and to tell him how to make a satisfactory honey syrup for making popcorn balls and popcorn confections for the enjoyment of his family and friends."

For the benefit of beekeepers who desire to take advantage of Mr. Hendrickson's kind offer of assistance, his address is: Mr. L. W. Hendrickson, 817 Pine Street, Seattle, Wash.

## Dangers in the Use of Chlorine Gas

By C. H. Gilbert  
Wyoming

**O**N a recent trip through the state I had the pleasure of a short visit with Mr. Thompson, of Lander, Wyoming. He had used the chlorine gas treatment for diseased combs and had experienced considerable difficulty. Knowing that other beekeepers were using this treatment, I decided to write of Mr. Thompson's experience so that other beekeepers might avoid similar difficulty.

During the time Thompson was treating, the weather became so disagreeable that he was forced to move the treating tank inside the honey house. In this building over one thousand 60-pound honey cans were stored. After the gas had been on for three days, one of the workmen noticed that all the cans were black on the top. They appeared as though they had been in a fire. The gas had worked down on the sides of the cans that were upright and they were black for a couple of inches on the sides. The corrosive action continued throughout the summer and was most active during damp weather. Mr. Thompson washed and wire-brushed some of the cans in an effort to stop the action of the gas, but to no avail. He also painted some with a bronze paint, but it was also affected. Many cans were ruined and much time lost. This experience was certainly a costly one and should be avoided by all beekeepers using chlorine gas.

Ahrens and Tanquary recommended that the treatment be conducted in the open air, as the gas was disagreeable. They also state that chlorine gas is a strong oxidizing agent. However, their statement, "The effect on foundation wire and metal parts is so slight that it may be disregarded," may be confusing to other beekeepers as it was to Mr. Thompson, and serious loss result. Since this work should be carried on when bees are not flying, it must be done during cold weather. It may, therefore, be necessary, when a large number of combs are being treated, to have the tanks inside. In that event it may be well to use a mask and to make sure that all cans are removed from the building.

During the course of the season American foulbrood was found in some of the treated colonies. This, of course, was a big disappointment and Mr. Thompson has again given up the idea of treating.

Many methods of treatment for American foulbrood have been developed and recommended in recent years. Unfortunately none of the results of treatment are uniform. Some beekeepers report success and

others failure. The failure of treatment is probably not due to ineffective disinfectant, but because the disinfectant did not come in contact with the organisms causing the disease.

Sterilization of combs is impossible unless every cell is uncapped and all the honey removed. In preparing hundreds of combs for treatment it is almost impossible, from a practical standpoint, to open all cells. We have found capped cells of honey on combs after they had been soaked and carefully inspected on two previous occasions by capable student assistants. If capped cells are missed under these conditions it is very likely that many will be overlooked by beekeepers when hundreds of combs are being treated. I suspect that many combs are thrown in the tank without being inspected at all. Beekeepers cannot be too careful in this regard. The success of treatment depends upon it.

Undoubtedly the value of drawn combs has been greatly overestimated. As a result beekeepers generally have not hesitated to spend considerable time and money in treating them. This may be poor economy. Considering the problem from all angles, there is considerable merit in the practice of melting all undesirable combs and salvaging the wax. If old combs are to be rendered efficiently it is almost essential to have a wax press, as considerable wax is carried in the "slumgum."

[This will recall the article by Samuel Cushman in our November number and our editorial comments about our own experience. Now, Mr. Gilbert's is an unfavorable report of the use of this treatment from Wyoming.

We can verify Mr. Thompson's experience with the effect of chlorine gas on metal, on leather and on cloth of any sort. It is absolutely destructive to most of those three which may be about the honey house, and so it cannot be recommended to use inside at all.

The biggest disappointment to us has been the fact that the combs are not all sterilized by the chlorine treatment. As near as we can estimate, about 25 per cent of the combs are not safe. Of course, it is impossible to tell, when they are taken from the tank, which combs may be used and which may not be used with safety. Secondly, the combs are in such poor physical condition that they must be aired for a long time, and even then the bees will not treat them with respect.—Editor.]

## The Value of Combs, With Honey and Pollen, for Package Bees

By A. William Bowman  
Saskatchewan

**A**FTER reading the many complaints about the failure of queens shipped with package bees and the various theories to account for it, I would suggest that the probable reason is **food**. My own experience during the past five years gives color to this probability.

For the first three years I used packages, I put them on extracting combs and fed them liberally on sugar syrup. While we have a fair supply of willow, dandelion and fruit bloom for the bees, the weather is so often unfavorable that no colony can begin to keep itself until the honeyflow commences.

The results of these first three years were not very good. Many queens failed and the packages barely paid for themselves.

During the last two years, however, I have put packages on combs fairly well filled with honey and pollen. These are carefully sorted out the previous fall and stored away for this purpose.

Since doing this I have had no trouble with package bees, and few overwintered colonies outstrip them. Also, there has been no queen trouble at all.

A queen shipped in a package is put to a great strain. She has to live on candy (or syrup) for a week while on the way, then she is put into a hive of empty combs and asked to fill them quickly. If she does not get the right food containing the constituents necessary for her health, she must surely give way before long.

If you buy packages, be sure and save enough combs with both honey and pollen to carry them through until they can get ample supplies from the field.

[This is very good reasoning and we believe purchasers of package bees will do well to follow Mr. Bowman's advice.—Editor.]

## To Overcome European Foulbrood

Sometimes one may have a good strain of bees and still they will have European foulbrood. This often happens under some abnormal condition. The remedy I use is to cage the queens for a week, feed a ten-pound pail of syrup, and, to make sure of a crop of honey, order a two-pound package of bees for each colony affected. Sprinkle the old bees well with sugar syrup before adding the new ones.

David Pile, Montana.

# The Activity of Bees in Relation to Cellar Wintering, II.

By C. L. Corkins  
Wyoming

LAST month we made preparation both for a controlled artificial winter and for the "lungs of the colony" by which the amount of work done under different temperature conditions could be measured. So we are now ready to place the colony in the cabinet and start the machinery.

Winter has arrived and our test colony has already been subjected to severe weather. A chinook has come to break the cold snap and the bees have had a good cleansing flight. We place them in an eight-frame observation hive, leaving all the side-boards off and even boring holes in the bottom which are covered with screen, so that the air around the cluster will be about the same temperature as the air in the cabinet. The bees then are really in the cabinet as a hive. Forty-two delicate electrical thermometers are placed all through the hive and two in the cabinet, so we can read the temperatures accurately from the outside in all parts of the cluster, hive and cabinet.

For the first run the temperature of the cabinet is set at  $56\frac{1}{2}$ ° F., just cold enough to provide for clustering. This is selected as a starting point because it is this temperature which previously we have supposed caused the least work during winter. The bees are subjected to this temperature for 163 hours. At the end of this time we find that the average amount of carbon dioxide given off is 3.6 grams per hour. The temperature, too, has been recorded. Mostly we are interested in what has been going on in the inner portions of the cluster. Here the temperature has held to a most remarkably even mean of 89° F.

Now the cabinet temperature is lowered to 37° F. for 155 hours. Let us see what happens both as to work output and cluster temperature. The average amount of carbon dioxide given off is 1.9 grams per hour, approximately one-half as much as before; and the cluster temperature has dropped to  $83\frac{1}{2}$ ° F. Most incredible! It is just the opposite of what the books have told us, both on work and temperature. They both lowered, when, according to Hoyle, they should have both increased.

So let's do it all over again with the same bees, right away—a check-in run of shorter duration. This time we have the cabinet temperature at 56° F. for 82 hours. The average carbon dioxide output is 2.6 grams per hour, less than before, but still more than at the lower temperature.

This is the close of a series of articles which resulted from the experiments on wintering in Wyoming. That they have interested many readers is shown by the letters we have received. These articles tell the story of a new kind of winter behavior which practice had almost proven to exist but which experiment had not yet shown.

The mean cluster temperature is 83° F.

Now for 91 hours the bees are again subjected to the lower cabinet temperature of 37° F. The carbon dioxide output is 1.6 grams per hour, a little over half as much as on the previous run at the higher temperature. The mean cluster temperature has dropped to 76° F.

Additional experiments are conducted and always with generally similar results. At a cabinet temperature of 20° F., the work done by the bees is still less than at or near the clustering temperature.

If we are going to winter our bees at a temperature below the clustering temperature, in order to cut down the activity, the next question is, just how cold should it be for the best results? Another factor here enters into the problem. When the bees cluster they are on and in more or less empty combs and pull away from their reserve food supplies. Obviously, if the bees are to be kept at a low temperature for months, it must not be so low that they cannot move onto new stores, else they would starve to death.

Unfortunately, this so-called depression hit our work before this phase of the problem was completed. But some important results were obtained before the work was halted.

A colony of bees was placed in the cabinet for a constant temperature run at 38° F. for eight weeks. Day after day the work factor was low and practically constant hour by hour for nearly three weeks. Then it ascended gradually for several hours to nearly twice its original figure and then within a twenty-hour period dropped back to normal. Temperature increases were also noted. The bees were either bringing honey into the cluster or moving onto new stores. This rhythm was noted thereafter at shorter intervals, sometimes of three or four days and sometimes of a week. Always there was a return to quietness and lower tempera-

tures following these short and gradual disturbances.

This same experiment was conducted at 34° F., with the same results, but at the end of the run it was apparent that the bees had suffered from this temperature. Probably it was too cold for the bees to move normally onto new stores without some becoming chilled and lost.

Companion practical cellar wintering experiments were under way at the same time. As much as possible, the cold cellar was kept at about 34-36° F. The check cellar was at 44-46° F.

Always in the cold cellar the bees were more quiet and they came out in the spring in better shape and with a much smaller consumption of stores.

Ordinary single hive bodies give a cellar protection of about 8° F. Therefore a cellar temperature of about 32 to 36° F. seems to be about right in the light of our present knowledge.

The practical aspects of obtaining these lower cellar temperatures are yet to be worked out. Some beekeepers are already working towards them. It throws a new light on ventilation. We will need more and better ventilation. In many cases ventilators will have to be closed or partially closed during the day and opened at night. Crowding of too many colonies into a small cellar must be avoided. At least 25 to 30 cubic feet of space should be allowed each colony. Although I have not yet tried it, I am inclined to believe that individual hive ventilation should be provided where it is difficult to hold cellar temperatures down; perhaps false-tops and bottoms of screen with full circulation of air through the hive. May I suggest that some beekeepers try it? I no longer have the opportunity.

To the beekeepers of southern California, and others in generally similar conditions, may I suggest that you experiment in two directions? One is to investigate fairly deep cellars with artificial refrigeration units. The other is that as soon as the fall flow is over, you move your bees to the higher altitudes of the mountains—7,000 to 10,000 feet altitude. Keep them in the shade of forest evergreens, both for evenness of temperature and wind protection. If you are afraid of snow, give them top entrances as well as bottom. Then you won't have to worry about looking after them more than once a month, during a warm spell. Six or eight weeks before the orange

flow, get them down to the valley, out on a southern, hot hill slope (not under your orange trees) and see if they don't "snap into it" better than ever before.

Again the crux of the wintering problem is the prevention of work. In cellar wintering it is necessary to have a temperature which will keep the bees fairly tightly clustered and quiet. A noisy cellar with bees crawling or clustering out is a sure sign of too high a temperature. A cool, quiet cellar cannot be maintained for months unless the temperature is held to about 32 to 36° F., giving a hive temperature around 40 to 44° F. For, after all, bees are insects instead of mammals, and we are just now discovering that they do act very much like other insects and are not the automatic temperature-regulating, self-stoking furnaces many have thought.

### New Line of Honey Products

We are in receipt of several samples of honey products put out by the Sisters of St. Benedict, Mount St. Benedict, Crookston, Minnesota. They issue a little folder to go along with their products with the title, "Honey That's More Than Good to Eat!" The products are packed in little round jars with white caps and a very attractive label.

One is a pure honey cream, natural honey in the raw state in a beautifully white, fine-grained form. Their "cream honey butter" is a combination of creamed honey and dairy butter, which is very delightful and takes well with young folks.

Their cream honey meringue, made after the fashion of the recipe by Mrs. Malitta Fischer Jensen, is a glossy snow-white finish or topping for cake, pies, cookies, and so on, and seems to have very good keeping qualities. Then finally they have a fruit honey spread made of raw fruits, nuts and honey, for sandwiches, cake fillings and cookies.

We believe that one of the ways in which honey can be made to become attractive to more people is through honey products of this sort. In addition to the products mentioned above, the Sisters also put out a very fine grade of white sweet clover honey.

### Honey Popcorn Balls

½ cup honey	½ tsp. salt
½ cup sugar	1 tsp. vinegar

Cook until brittle when dopped in water. Add ¼-tablespoon butter. Pour hot over popcorn, mix well and shape in balls with hands.

C. J. Oldenburg,  
Minnesota.

## Experience in the Sale of Honey

By S. F. Haxton  
Pennsylvania

THE excellent leading article in the November American Bee Journal, by Walter H. Hull, closes with the warning that the beekeeper who plans to sell honey in a wholesale way "is treading on dangerous ground."

Naturally, the beekeeper who sells his extracted honey for 6 cents a pound and sees the same or similar honey in the grocery store, priced at from 25 to 35 cents a pound in glass, feels that someone is making excessive profits on his product. But who is getting too much?

The independent grocer expects and is entitled to a margin of 25 per cent on his selling price for honey, which he regards as a seasonable item and something of a luxury—not a staple by any means and not a fast seller in the ordinary store. If he is to retail honey in glass for 25 cents he expects to buy it for \$2.25 a dozen, delivered in his store, which is equal to 18½ cents per unit. The beekeeper who has not had experience in selling honey to the grocery trade thinks immediately: "Well, the difference between 6 cents (say) for the honey and the 18½ cents that the grocer pays is enough to pay for the glass and allow a big profit for the packer."

But is it? If the packer distributes through the wholesale grocers, he must pay these distributors for their services. The average wholesale grocer figures his services are worth 15 per cent, since he has to receive the goods from the freight car, haul them to his warehouse, in most cases deliver them to his customers, bill them, extend credit, lose a certain small percentage in bad debts, pay for the work of his salesmen, his own general overhead, etc. The wholesale grocer who makes a net profit of 1 per cent in these days is an exception, and many actually are operating at a loss.

The case of twelve pound bottles of honey for which consumers pay the retailer a total of \$3.00 thus goes to the retail grocer for \$2.25 and to the wholesale grocer for \$1.93. As a matter of fact, however, one of the leading brands is being sold to the wholesale trade at \$1.75 a dozen, with an extra discount of 5 per cent for purchases of twenty-five cases or more, making a return to the packer of \$1.66½ per dozen, or of \$1.63 with the cash discount of 2 per cent deducted. This is equivalent to about 13½ cents per jar.

Assuming that the honey costs 6 cents, a total of 7½ cents is left to pay for the jar, for its share of the

corrugated case containing it, for the labor of liquefying the honey, bottling it, labeling it, casing it, hauling it, freight, etc. In addition to this there is the "general overhead" of the packer, which includes rent, maintenance of trucks, wages and expenses of salesmen, cost of printing and advertising, and scores of other items which one does not anticipate unless he has had experience. After all these items have been paid, the packer must look for his profits. If a packer is able to make a net profit of 1 cent a jar on the one-pound jar for which the consumer pays a quarter, he is fortunate.

But because beekeepers themselves do not know their own costs of doing business, and consider their own time and efforts worth nothing, extracted honey often is sold in small packages for the cost of the honey plus the cost of the glass or tin that contains it. Five-pound tins at 49 cents have been offered at one department store in Philadelphia! Figure a profit for the store, and what did the beekeeper get?

A complete schedule of today's wholesale prices on one nationally distributed brand of extracted honey, in glass, in the Philadelphia territory, is as follows:

Size of jar	Costs whole-sale grocer per doz.*	Costs retailer per doz.
4-ounce	\$ .70	\$ .85
5-ounce	.77½	1.00
8-ounce	1.08	1.25
14-ounce	1.75	2.10
32-ounce	3.60	4.00

(\* 5% off this for quantity orders. Special "deals" offering one case free with orders of certain quantities occasionally may reduce this still further.)

So the large packer is compelled to employ automatic machinery and buy supplies, such as bottles, labels, caps and cartons, in enormous quantities, in order to see a profit.

"But," the beekeeper may say, "I don't intend to sell to the wholesale grocer. I intend to sell directly to the retail grocer and get the wholesaler's profit for myself." There is, of course, no objection to doing this, but experience shows that the actual cost of distribution direct to the retail trade is at least as great as the cost of doing business through the jobbers. To the jobber, honey is only one item, and the cost of selling it, through his own salesmen, is shared by scores of other items. But the salesman selling honey alone to the retailer has a hard row to hoe.

If salesmen are hired for the job, their wages or drawing accounts are figured on a 20 per cent commission basis. A large bottler in New York has been successful in distributing in this way, but he has been forced to add other items to the line to enable his salesmen to make a fair living.

One difficulty that confronts the producer attempting to sell direct to the grocer is that the producer expects cash on delivery, whereas the retailer probably has an established credit with one or more wholesale grocery houses and can order what he needs without paying immediately. This objection, however, is becoming less serious every day, since more and more independent grocers are becoming members of voluntary chains or cooperative buying syndicates which require them to settle every day for the purchases of the day before. These cooperative wholesale grocery houses, owned by the grocers themselves, are becoming bigger factors in the grocery business. And all of them sell honey!

Another difficulty facing the producer-salesman who expects volume business is that, in these times of depression, grocers are buying in as small quantities as possible — on a real "hand-to-mouth" basis. Wholesalers are willing to split cases of such commodities as honey and deliver a half dozen, a quarter dozen, or even a sixth of a dozen bottles. The average small grocer in a large city thinks he has an ample stock if he has as many as a dozen jars of honey of assorted sizes.

A third difficulty facing the commercial packer who sells direct to the grocer is the action of beekeepers themselves in cutting prices.

And the weather has a great effect on honey sales. This fall and early winter have been exceptionally mild. As a result people have not been making hot cakes, or "pancakes," and in consequence have not been eating extracted honey as they should. Stocks that should have been exhausted weeks ago are still on the shelves.

But the greatest trouble this year is "hard times." Grocers feel that they are taking a real risk when they stock honey. "No, I'd better not take a chance," is a frequent remark. "People haven't any money for luxuries this year," is another. "I still have a lot of honey left from last winter," is a third. "People never ask for honey" is perhaps the commonest of all.

It is easy to answer the last objection by saying, "Of course people don't ask for honey. They have to see it in order to want it. Put it where they know you have it and you will sell it!" And this statement has been proved correct in hundreds of stores. If honey can be

displayed on a counter or showcase or near the cash register where the public can see it, it will move fast enough in spite of the times.

But in spite of all these objections a good salesman still can sell honey to the grocers. He must be content, however, with small orders at the start.

One of the leading wholesale grocers in Philadelphia stated that his total sales of honey last year were as follows:

5-ounce jars—1876 dozen.  
8-ounce jars—940 dozen.  
14-ounce jars—365 dozen.  
32-ounce jars—74 dozen.  
Comb honey—47 cases.

Note that five-ounce jars outsold all other sizes two to one, and then stop to think whether honey may be regarded as a staple in the American home!

Note also the small sales of comb honey. In Philadelphia today not more than one grocer in ten has comb honey in stock. They say, "People don't know comb honey," "People ask how it is eaten," and "Bottled honey is better." As a beekeeper, I am dumfounded, but their statements are true in so far as they relate to people here, at least, not knowing or appreciating comb honey. In a store near my home a grocer showed me some of my comb honey, cellophane wrapped, with a big dent punched in the face of it and the honey leaking. I asked how it happened and he said, "Oh, a woman poked her thumb in it. She said she thought it was springy, like marshmallow." While I have been selling honey, I have been asked, "How do you get it out of the wood? How do you eat it?" and "Do you eat the wax or squeeze the honey out and throw the wax away?" I have met grown persons — many of them, including some grocers — who told me they never had seen comb honey before.

The sales of maple syrup and of cane-and-maple syrup in this territory are five times as great as those of honey. The sales of corn syrup are at least twenty-five times as great. Cane-and-maple syrup and corn syrup are advertised. Honey is not advertised. Sales of two brands of cane-and-maple syrup in Philadelphia last year amounted to 2,612,000 cans or bottles; sales of extracted honey probably did not exceed 500,000 bottles. One packer distributed five carloads, or from 7,500 to 10,000 cases of honey, in Philadelphia in one year, and this was the only brand with general distribution.

Distributing honey, either direct to the retailer or through the wholesaler, is hard work — particularly hard just now. Mr. Hull, who wrote

so well in the November issue, knows distribution. I know something about it, too, because for fifteen years I have been engaged as merchandising man (creator of sales plans) for a large national advertising agency, and in that capacity have had to be familiar with sales and sales promotion methods of many industries. I am applying some of these methods to the sale of honey in Philadelphia — honey from my own bees and honey purchased from producers in New York State, who have better honey than we can get here. Because I know my selling costs, I know that, as Mr. Hull says, you are "on dangerous ground" in attempting to compete with the large packers on a widespread distribution basis.

## A New Use for an Old Sweet

James Martin, of Bellaire, Michigan, donated \$12.67 to the Institute. This was based on three cases of light honey at \$5.00-\$15.00 — less freight, \$2.33. Here is a man who can see that the American Honey Institute is his publicity medium and by means of it believes he will eventually be able to sell all of his honey at good prices.

If only more beekeepers had the same vision and the same spirit of cooperation, the American Honey Institute would not have to worry about how it is going to meet its payroll the first of each month. If the readers of this story have any honey to spare, kindly ship it at once to your nearest receiver as shown on inside back cover of this issue.

Lewis Parks, President,  
American Honey Institute.

## "Pollination of Rhodora"

A Study by John H. Lovell  
and Son

We have just received a copy of "Rhodora," a journal of the New England Botanical Club, containing an article with the above title by John H. Lovell and son, Harvey B. Lovell. It is an extensive study of the early blooming *Rhododendron canadense* Torr of New England.

Rhodora is a bumblebee flower, pollinated by the female bumblebee, the only caste of this genus on the wing in May. The head of the bumblebee touches the upper, and the ventral side of the abdomen the lower anthers of the flower. The honeybee is only an occasional visitor and it is doubtful if it can reach the nectar. There is no reliable record of a surplus of honey ever being gathered from this or any other species of rhododendron or azalea. A beekeeper at Divide, West Virginia, writes that he was unable to find a single honeybee on the bloom of the rhododendrons, though they covered the land there for mile after mile.

# Influence of Colloidal Constituents on the Development of Color in Honey

By H. S. Paine and R. E. Lothrop  
Carbohydrate Division, Bureau of Chemistry and Soils,  
U. S. Department of Agriculture

**I**N previous articles (1) (2) the authors have discussed the part played by the "colloidal" or "gummy" constituents of honey in influencing certain of its properties, such as color, clarity, foaming, and the formation of surface scum layers. Mention was also made of other ways in which these colloidal substances influence the properties of honey. The present discussion will deal briefly with the direct and indirect influence of colloids on the darkening of honey when it is heated, or when it is stored for long periods of time.

It is a matter of common knowledge that when honey is heated to relatively high temperatures a pronounced darkening in color may occur. This change is generally referred to as "caramelization," in view of its similarity to the darkening or "caramelization" of sugar solutions when heated. Honey, however, usually begins to darken or caramelize at a temperature somewhat below that of an artificial honey of corresponding composition prepared from pure sugars alone without the addition of any non-sugar substances. The fact that honey, when heated, darkens somewhat more readily than products such as invert sugar places honey at some disadvantage when it is to be used for candy making, baking, or for other purposes which require heating.

Honey and invert sugar are quite similar in composition when considered only from the standpoint of the sugars present. Honey, however, in addition to sugars, contains a number of substances, such as acids, "dextrans," albumins, enzymes, pigments, and flavoring compounds, that occur in relatively small amounts, but which nevertheless are chiefly responsible for the "character" of honey. It is rather to be expected, therefore, that certain of these non-sugar constituents may be responsible for the characteristic behavior of honey on heating. Heretofore the information available on this subject has been very limited.

In a recent study of honey colloids conducted by this division a large

number of honey samples representing the most common floral types of American honeys were treated so as to remove the greater proportion of the colloids present. This was done by filtering the diluted honey through thin films of collodion, after which the honey was carefully evaporated to original honey density in vacuum at a low temperature. This method of filtration is termed "ultrafiltration," because it removes suspended particles of much smaller size than does ordinary filtration.

Samples of the "ultrafiltered" honeys and the corresponding original honeys were then subjected to a standard "candy test" in order to determine the ability of each to withstand heating. This candy test is intended to reproduce on a small scale the conditions under which hard candy is made, and is conducted as follows: A weighed portion of the honey to be tested is incorporated in a mixture consisting of definite proportions of cane sugar, glucose and water. The mixture is then heated in a small enameled vessel until the temperature reaches 290° F., when it is poured onto a slab to cool. The ability of the honey to withstand heating is determined from the color and other characteristics of the resulting hard candy.

This test was adapted from a "candy test" that has been applied to cane and beet sugars for a number of years. When the test is applied to various samples of granulated sugars, rather large differences in the color and chemical composition of the resulting hard candies may be found. The color of the "candy" produced from one sugar may be practically white, whereas that produced from another sugar may have a distinct yellow or brownish tint. The behavior of granulated sugars in this respect is due to the presence of minute quantities of non-sugar substances. Both the quantity and the nature of these constituents influence the color of the "candy," although the total quantity present may represent at the most only a few hundredths of a per cent of the weight of the sugar.

It is not surprising, in view of the behavior of refined sugars, to find pronounced differences in the behavior of honeys of various types upon application of the candy test. The results showed conclusively that the samples from which colloids had

been almost entirely removed withstood the heating with less accompanying darkening than the corresponding original honeys. In addition, rather large differences were found in the behavior of the original samples. In general those honeys which contained relatively large quantities of colloidal constituents darkened to a greater extent than honeys which contained smaller quantities of colloids.

Light honeys (usually low in colloidal constituents) withstood the heating test better than dark honeys (usually high in colloidal constituents). These results were confirmed by subjecting several portions of the colloids isolated from various samples of honey to moderate heating. The colloidal material itself proved to be very sensitive to heat, temperatures of 160° to 170° F. being sufficient to char and almost completely decompose the material.

From these results it might appear that honey colloids are altogether responsible for the darkening of honey on heating. It was found, however, that honey after being rendered approximately free of colloidal constituents was still somewhat more sensitive to high temperatures than an artificial honey of corresponding composition made from pure sugars alone. Some substance or substances other than colloids which are present in honey must be responsible for this behavior.

The additional substances which in all probability play an important part in the caramelization of honey have been identified as "amino acids." Amino acids, it may be explained, are produced when meat or other protein-containing foodstuffs are completely broken down by the digestive process. The quantities of amino acids found in honey are usually quite small. It is possible that their presence is due to the breaking down of a portion of the albumins and other proteins of honey by a protein-digesting enzyme present in honey.

Amino acids combine with the sugars of honey to produce dark colored compounds. The formation of these dark colored substances takes place much faster at high temperatures. The darkening which occurs when honey is heated is due partly at least to the presence of amino acids and related compounds. The darkening of honey when it is kept

(Please turn to page 27)

(1) Lothrop and Paine, "The Colloidal Constituents of Honey and Their Influence on Color and Clarity," *American Bee Journal*, Vol. 71, No. 6, pp. 280-1 and 291, June, 1931.

(2) Lothrop and Paine, "The Colloidal Constituents of Honey and Their Effect on Foaming and Scum Formation," *American Bee Journal*, Vol. 72, No. 11, pp. 444 and 450, November, 1932.

## All Around the Bee Yard



HERE it is November 29 and I am marking my calendar to show that it has been a good flight day. Looking back, I see that the first of November is so marked and find that on the eighth of November there was snow; the ninth was cold, continuing through to the thirteenth; but on Sunday, the thirteenth, the bees again had a flight, which continued through Monday, the fourteenth. Then on Tuesday, the fifteenth, the calendar is marked "snow, blizzard."

It was, too. If you will read the Postscript you will note what Frank Pellett has to say about our experience on that date. Maurice and I started out from Hamilton for Springfield, Illinois, but had a car wreck in the first twelve miles. Terrible roads and yet nobody hurt. We came back home.

However, the calendar is marked for a flight again on the twentieth, following this blizzard on the fifteenth. Also, a flight on Thanksgiving and a real good flight today. That's a pretty good record for November. I wonder if heavy packing would ever pay in this country? We'll see what the records are for December.

Walking up and down between the rows, I notice that every colony has had a splendid flight; very few dead bees and very little spotting of the hives. So far, wintering is 100 per cent.

\* \* \*

Now, it is a long way into December. Let's look at the calendar. We had flights on the first and second and on the fifth, but on the seventh of December the temperature dropped to about 15 degrees, then down to 10, and continued to slide down to 5 below zero on the twelfth. Today, the fourteenth, it is about 20 above and we have had an abundance of snow, with several bright, sunny days when it was very quiet, and I believe, in the sheltered locations, bees would be able to move to stores readily. The elder Dadant says if bees can fly once a month through the winter, in this climate, they will do well outdoors with only a little protection. According to that, we should have a flight day some time in the first half of January. We shall see.

\* \* \*

We form quite a bee community here at the American Bee Journal. The Dadants, who publish the American Bee Journal, have about five

hundred colonies of bees, owned by the firm, including the editor-in-chief, C. P. Dadant, and all the Dadant boys. Also, Field Editor Pellett has bees on his farm at Atlantic, Iowa—has had for a good many years. As you know, he was formerly inspector of apiaries in Iowa and made his living to a large extent from bee-keeping. Associate Editor Cale has about 150 colonies (or did have at the beginning of winter), and the assistant apiary manager has 150 colonies of bees—altogether quite an outfit. So we are in and out of bee problems all the time and get much interesting information from one another.

Our assistant apiary manager has been out to sell his honey and he has been confronted with the usual ups and downs of this oftentimes distasteful occupation. He had one outstanding experience, however, in selling here in the Middle West which is worth passing on. Choosing a certain route in an endeavor to distribute honey direct to retail stores, he found very little acceptance. The stores simply would have nothing to do with his honey. I believe that comes from the suspicion of honey as a pure product.

He came back home discouraged, but not whipped. He happened to remember a few supers of chunk honey which he had saved from the 1932 crop but which he had not yet sold, so he cut out the honey from these frames and put it in five-pound pails, filling the pails up with extracted honey. I imagine there was not over two pounds of chunk honey to the pail, and he went right back over the same route and his honey sold so well that his car was emptied by noon and he came home, ready to pack another load for the next day.

Selling experience cannot be depended upon to repeat itself everywhere or for everybody, but this experience indicates that possibly part of the acceptance of honey as an honest product is dependent on the presence of honey in the comb, which everybody recognizes as honey and which they seem to think can only be made by the bees. "Any man who has comb honey in with his other honey," says the store man, "must surely be an honest fellow and his honey must have come from a beehive. Without the comb in, it is quite probable that his honey may be a concoction of several things and so may not be pure honey."

This seems to be borne out by experience, too. One storekeeper, on having purchased several pails of honey, turned to serve a customer who wanted to buy the newly acquired product. Said the customer: "Is that **pure** honey?"

Merchant: "It's **supposed** to be."

Customer: "How much is there in the pail?"

Storekeeper: "There is **supposed** to be five pounds in it."

So you see the suspicion was still there. He wasn't dead sure it was pure honey and he did not know for sure there were five pounds in it just because the label said so. We're so close to honey, we fail to see how other people may look upon it, and, in spite of all the work that we have done, we have still the job on our hands of convincing many people that liquid honey alone is a pure, wholesome, natural product.

G. H. Cale.

### Baxter a Master Farmer

Our beekeeping friends of Emil J. Baxter, of Nauvoo, Illinois, will be glad to learn that he has been made a Master Farmer, being chosen one of a group of four for the honor by Prairie Farmer, who makes a selection of these Master Farmers every year.

Inasmuch as Mr. Baxter specializes in beekeeping, fruit raising and vegetable growing, no doubt a part of the basis for recommending him as a Master Farmer lay in his bee-keeping.

Mr. Baxter went to Chicago during November for the ceremony, which was broadcast over WLS.

### Fines Paid With Honey

What a boone to the producer of honey if a practice of the ancient guilds could be revived.

Having occasion to delve into the rules and regulations of the guilds, I ran into the following regulations of the "Guild of Thanes," which flourished in Cambridge, England, sixteen hundred years ago:

An oath of initiation.

Burial by the guild of diseased members.

A reeve, or warden.

Contribution to the Wergild.

Fines for abusive language and violence.

The common fine a sextarium of honey.

A famous guild at Exeter, England, which existed about the same time, had a rule compelling each guild brother to bring two sexters of malt, and each "eniht" one sester and a "sceat" of honey.

I hope some reader of the American Bee Journal will know how much there was in a "sceat." I don't.

Bert Hall, Wisconsin.

# The Junior Beekeeper

RUTH R. SMITH  
Editor



## How the Fairies Helped Again



Twinkle, Nimble and Blink were playing hop scotch on the broad leaves of the rhubarb in the old garden, when suddenly they heard screaming—dreadful screaming!

"What's that?" gasped Nimble.

"Somebody in trouble!" declared Blink.

Scream, scream, again came the voice, this time more faintly, then quiet. "Who can it be?" gasped Nimble, "and where?"

"Let's go," called Twinkle, and away they all scampered as only fairies can scamper.

They looked here, there, everywhere, when suddenly their friend Fuzzy the Honeybee appeared, her face strangely agitated.

"Quick, quick!" she called. "I was hunting you."

"What's wrong?" asked Twinkle. "Tell us."

"Oh, it's dreadful—someone has done the stupidest thing. Quick, there is not a moment to lose!" So straight through the old garden, past the house, into the rose garden flew the honey bee and the fairies, straight to the tool house, where all the tools stood neatly arranged in their proper places.

"Help, help!" came a very faint, weak voice, and as she alighted upon the old sprinkling can, Fuzzy answered cheerfully, "We're coming! We'll get you out!" Then she peered

Dear Children: The Big Editors have been wondering how many boys and girls really have bees of their own. I know of several myself, and I am sure you do too. Wouldn't you like to write me and tell me something of your own bees—why they belong to you—why you like to work with them—where you got them? Did you catch a swarm or find a bee tree?

I know one boy who got his start because a swarm INSISTED on going to housekeeping in an old wooden pump, and, since his grandma just WOULD NOT let them stay there, his grandpa showed him how to hive them. Now he has eight colonies and is a Boy Scout working with bees to get his merit badge.

Come, let's prove it to the Big Editors that boys and girls really are beekeepers. Write me, care the American Bee Journal, Hamilton, Illinois, and some day, perhaps, these Big Editors can make room to publish some of your letters.

Your friend,

Ruth R. Smith

anxiously into its depths, and the fairies, looking closely, could see down, down, down at the very bottom of the can, a bit of water, reflecting the blue summer's sky, and therein a tiny, struggling figure.

"Who is it?" began Blink.

"It's my sister, Brownie!" cried Fuzzy. "Oh, oh, the poor, poor thing!"

"Well, we must get her out," declared Twinkle stoutly.

"But how?" queried Nimble. The sprinkling can was a very large one and it was a long, long way down to the reflected blue at the bottom.

"If only careless folks would not leave vessels about partly filled with water," sighed Fuzzy. "Bees are so often drowned in that way; but—we must, we just must help Brownie!"

"Indeed we must," Twinkle answered decidedly. "Cheer up, Brownie," he called, "we'll soon have you out!"

"But how?" inquired Nimble gloomily, looking down at the depths below.

"There is always a way to do what is right to do," declared Twinkle. "You know that!"

"Help, help!" came from below.

"If only she had something to rest on," sighed Fuzzy. "She's getting weak!"

"We'll find something," answered Twinkle; and away scampered the fairies to return in but a moment with a bit of leaf, which with much

pushing and shoving they finally managed to drop over the edge of the can, and then the three fairies and Fuzzy watched it sail gently down, down to the blue reflection below, and they bravely shouted encouragement to poor, tired Brownie, who slowly and wearily made her way toward it and with great effort climbed upon it.

"Now we must have a ladder—or a rope," Twinkle announced.

"I know where there is a bit of string," put in Blink. "It's fastened to the currant bush! The robins tried to carry it away for their nest!"

"Get it," commanded Twinkle. So away went Blink and Nimble. Then he turned to Fuzzy. "What on earth was Brownie doing down there anyway?" he asked.

"Why, hunting water, of course," replied Fuzzy. Then, seeing the puzzled look on her friend's face, the honeybee continued: "We honeybees have to have water, you know. We dilute the honey we feed to our babies with water, and we use water to keep our houses at an even temperature. It's the duty of some bees to keep our home constantly supplied with water. Oh, dear, why won't people who keep bees give us some safe place to go to get it in safety? A brook or pool does very well, but a shallow tub with bits of cork or wood is so easily fixed and is much safer, and there we could drink in safety. People are so careless—"

Then Blink and Nimble returned to report that though they had tugged and tugged, it was all in vain. "But I saw a nice long straw," Nimble added, "though it is far too big and heavy for us to handle. See, right there in the drive!" And he pointed.

"Oh, whatever shall we do?" sighed Fuzzy. Then—"I know, I know," and away she flew, to return in but a moment with Mrs. Wren, who swiftly caught up the straw in her bill and brought it to them. Moreover, though she fussed and grumbled a bit at having to leave her five babies, she stayed and helped the fairies and the honeybee as they worked and worked, until finally the end of the straw was neatly placed right on the bit of leaf, close beside Brownie.

"How can we ever thank you?" began Twinkle; but Mrs. Wren only laughed and said, "I'll call on you some day," and away she flew.

"Oh, Brownie," called Fuzzy to her sister, "see what a fine bridge we have for you!"

Twinkle laughed gleefully. "That is not a bridge, Fuzzy. Don't you know? That is a trapeze. Come on, Brownie, you're a circus performer. We'll hold it tight!"

"Yes, yes," called Nimble. "Come, climb up." Then the fairies began to sing, and Fuzzy hummed:

"Come, climb up, up, up,  
And do not hes-i-tate,  
Climb this funny ladder  
At a lively rate!  
You're a jolly actor,  
This is circus day,  
You've the ways and manners  
Of a clown so gay!"

Thus encouraged, Brownie began to climb upward on the strange trapeze, at first slowly, then more rapidly, until before long she reached the top in safety. Eagerly she tried to thank her friends, but they would not let her.

"Just be more careful," Twinkle told her, "not to go prowling about in deep, dark places after water." And Brownie promised.

"And I've learned a lesson too," added Twinkle as Brownie spread out her velvet suit and delicate wings to dry in the sunshine. "I'm going to always—**ALWAYS**—watch and try to keep bees out of such dangerous places; but I wish—I just WISH folks would remember and be kind enough to give bees nice, safe places to drink." And the three fairies nodded their heads wisely; and I am wondering if perhaps you and I cannot help them and the honeybees about finding these nice, safe places Twinkle mentioned. Let's try!

## Mother's Delight



One of these cold winter evenings let us ask mother if we may borrow her kitchen, and if she says "yes," let's put on our aprons and get ready for a very happy time. Into a big sauce pan we'll put two cups of light brown sugar, one-half cup of sweet milk and a lump of butter about the size of an egg. We'll let this boil briskly until it bubbles gayly, then we'll add one-fourth cup of light liquid honey. We'll stir it as much as we want to and sample it too; but of course we must not sample it until it is all gone. When the sample deforms a nice, soft ball in a cup of

cold water, or will drop in little globules from the spoon, it is ready to come off. Then we'll add a teaspoon of vanilla and a pinch of salt, and with a Dover egg beater we'll beat it just as fast and hard as we can. When it begins to thicken we'll add—if we have them—either half a cup of nut meats or half a cup of cocoanut, and pour out on a buttered pan to cool. (Watch it, for someone may think it should be sampled again.) When almost cool we'll cut it in pieces with a buttered knife and then on a nice little plate we'll give mother a big, generous helping. Then we'll serve the rest, and—after that, of course, we'll wash the dishes and the kettle and put them all snugly away so mother will not have it to do. Can you guess why some boys and girls I know—and their mother, too—call this "Mother's Delight"?

## THE EDITOR'S ANSWERS

When stamp is enclosed, the editor will answer questions by mail. Since we have far more questions than we can print in the space available, several months sometimes elapse before answers appear.

### MOVING SHORT DISTANCE

When is the best time to move bees a short distance, in the fall or in the spring? **PENNSYLVANIA.**

Answer—The moving of bees a very short distance is the most difficult job in moving bees.

The old bees, or field workers of a hive, are accustomed to coming back to the exact spot they have learned. So you must compel them to become aware of the moving of their colony. Close up the hive before the morning flight begins and disturb the hive so they become fully aware that something unusual is happening. Then move the hive and release them and place some obstruction, such as a slanting board, in front of the entrance in order that, at the minute of their exit, they fully realize that the entrance is changed. Then they look back as they fly out and are likely to remember the change of location.

The time of the year at which you do this does not matter much, as it is only important that they do not fly out without looking back. Some people imagine that if they move the hives after a long confinement the bees will look back so as to remember the spot, but most of them (the old ones) do not look back. For the same reason it is important that colonies taken from the cellar, after winter, should be put back to the exact spot which they occupied before winter. Of course, you do not lose a large number of bees, but the good bee-keeper does not want to lose any.

### TO KILL THE BEES

Would you give me the better method of killing bees, as I am not able to fix up winter quarters for them and I only have a few, which I expect to replace with package bees next year? Can a person use bisulphide of carbon or sulphur without affecting the honey for use when extracted? **MINNESOTA.**

Answer—Burning sulphur, or brimstone, under the swarm in the hive will kill them surely, without affecting the honey. It only requires a little while to evaporate the fumes of brimstone. It would be best to wait until the brood is all hatched out, as it would have to be cut out, to prevent it from rotting.

### PACKING IN A "HOT-HOUSE"

I am starting in the bee business and have studied the subject a little. I have ten swarms that I am trying to winter. I have packed them, perhaps a little too warm.

I got some cracked wire-glass in large sheets and put two thicknesses on the north side of a house that I put five swarms in. I put packing cardboards on the sides, tar paper on the bottom, on a matched lumber floor, boarded up the front and ends, then packed with leaves about five inches on all sides. I made a front entrance about eight inches square, with a glass I can slide to shut up on cold days. On a few of the swarms I put a plate glass on top for a cover. I have made a few hives by making the inside of the hive with plasterboard one thickness, with a hollow space three-fourths inch, and put in two thicknesses of heavy cardboard, then a covering of wood. I figured a hive of that style would keep out the heat in the summer and keep warm in winter.

I am intending to make a few hives this winter and was intending to make the tops of plate glass, with a space above three-fourths filled or a few thicknesses of cardboard to break the heat. I can get the plate glass for about the same as lumber, and it will never warp. I found a few of the covers made from wood warped so it gave the bees work to stop the holes. What do you think of my ideas?

I got your book on the hive question, and the copy of the Journal is fine.

### WISCONSIN.

Answer—I have no experience whatever with wire-glass. It must be very good to keep things warm in winter and would probably be too warm in summer.

I once had five colonies in a hot-house, with their entrances on the south side. I

never had bees winter any better, and they bred very early. So I judge your packing is very good, provided it is not too warm in summer. Be sure and protect the hives against the rays of the sun when you do not wish them to try to fly.

Where you make hives with a glass top, you must protect that against the sun's rays.

#### EXTRACTOR RENTAL

I would like to ask you what would be a fair charge on the use of an extractor (two-frame). I want to be fair and not to overcharge. How would you rate it—by the hundred pounds, or what?

#### ILLINOIS.

Answer—We have never rented a honey extractor. We either loaned it free of charge or extracted the honey ourselves for a fifth, doing all the work for the bee-keeper.

If you wish to loan the extractor to him, I judge it might be worth a dollar a day, if he has a large lot to extract. You would soon pay for the extractor.

If you do the work for him, you will find that a fifth of the honey is good pay, if there is enough to keep you busy a day or more. For a smaller amount, charge a little more.

#### HONEY IN BOILING WATER

Could you tell me what happens to the honey if you let the water boil when you liquefy honey?

#### WISCONSIN.

Answer—if the water just starts boiling a little and the honey is in another vessel (*au bain-marie*), there will be no damage. But if the honey is allowed to stay within a vessel of hot water at the boiling point, it will evaporate the good flavor of the honey and darken it. It is better not to get the honey heated above about 140°.

#### KEEPING HONEY IN A METAL CONTAINER

Please find enclosed a stamp, for which please tell me if it is safe to keep honey in galvanized metal. I have a two-frame Back-Lot extractor that I am using for a honey tank. I think it is made of heavy galvanized steel. Do you think that will be safe or not?

#### INDIANA.

Answer—if your extractor can is not rusty, there will be no trouble with the galvanized iron; but if rusty at any point, it will have a bad effect upon the honey.

We prefer to keep honey in tin tanks. The only part that will rust in any tin vessel is the part where the metal was cut, if that part was not tinned over in soldering.

Pouring liquid wax over the metal of an extractor will entirely prevent rust and will make the container safe for honey.

#### FRUIT JUICES FOR VINEGAR

In your question and answer department on page 449 I notice someone asked about honey vinegar. I have made a considerable quantity, but believe it is too slow. You mention the use of fruit juice. Please give the instructions you mention.

#### NEBRASKA.

Answer—Vinegar will not get the acetic fermentation until it has considerable alcoholic fermentation. Then, to get the acetic fermentation it must have some acids, and these acids are best secured through fruit juices. The quantity of fruit juice must depend upon the amount of acid wanted and so must also depend upon the strength of the juices. So it is impossible to give you any positive amount.

#### STARTING PACKAGE BEES IN HOTBEDS

1. I can secure at very little cost a number of hotbeds. These have a hot water pipe through them so that the temperature can be regulated. What would happen if

I bought package bees early, say in March, and placed them in the hotbeds with an apartment for each hive separated from the other hives and with a small outside entrance? In other words, each hive would be by itself, be warm and have a space of say 16 or 20 cubic feet under glass which would be warm. I figured on feeding honey or sugar water. What I want to know is whether these stands would commence to build up and increase for spring, or would they have to have flowers for the bees to get the proper food to start the young bees?

2. In melting granulated honey from 60-pound pails, is the heat required to melt it out of the pails sufficient to keep it from sugaring thereafter?

#### SOUTH DAKOTA.

Answer—1. We have never tried putting packages received from the South in hotbeds. But we have had colonies of bees in a hothouse all winter, with the entrance on the outside as usual. These colonies succeeded splendidly, as they were less annoyed by the cold and could breed earlier than the others. However, I must say that the packages of bees which are bought in spring have no pollen to use for breeding until they can reach flowers in spring, and would therefore fail to breed as promptly as would be the case if they were in hives full of combs. Try colonies that you winter over in such hives, with enough heat to keep them hopeful. I believe you will be well pleased with the result.

2. Granulated honey which is heated to melt it usually has enough moisture evaporated out of it to keep it liquid, but that is not positive. Do not call such honey "sugared." The proper name is granulated, which is a natural condition.

#### Influence of Colloidal Constituents on the Development of Color in Honey

(Continued from page 23)

stored at ordinary temperature for long periods may also be explained on this basis.

Since the albumins and other proteins of honey (from which the amino acids present very probably are derived) constitute part of the colloidal material of the honey, the presence of amino acids and their effect on the caramelization temperature of honey can be traced indirectly to the colloids present. It is very unlikely that a practical method could be devised for removing such substances as amino acids from honey, although this can be accomplished on a laboratory scale. On the other hand, by removing proteins and other colloidal substances, any increase in the quantity of amino acids that might be produced by the continued action of protein-digesting enzymes is avoided.

As stated above, it is possible to separate amino acids from honey by a chemical procedure applicable only on a laboratory scale. When a small quantity of a solution of these amino acids separated from honey is added to a solution of dextrose or levulose (honey on the average contains approximately 75 per cent of dextrose and levulose), and the mixture is warmed, it quickly turns very dark. This darkening is illustrative of what

takes place when honey is heated. The same darkening in color will occur if the mixture of amino acids and dextrose is allowed to stand at room temperature, except that several months standing is required to produce the same effect as a few minutes heating at 175° F. The darkening in color of honey and peanut butter mixtures is probably due to some extent to a chemical reaction of the same type—i. e., a reaction between the dextrose and levulose of the honey and protein substances of the peanut butter.

The writers recently had occasion to examine several samples of honey that had been stored for approximately ten years. Most of the samples were quite dark in color, although the floral types indicated that these honeys originally were light colored. In certain of the samples, however, notably a sage honey, very little darkening had taken place. This illustrates the great difference in behavior of honeys of different floral types when stored for prolonged periods, and undoubtedly is due to differences in their content of amino acids and related compounds.

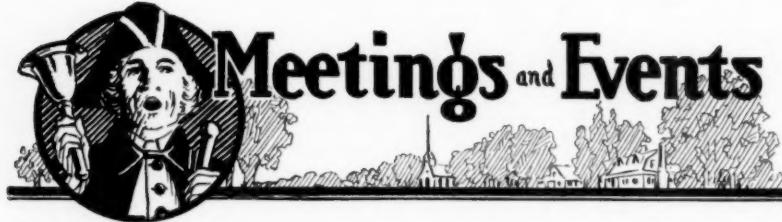
The caramelization temperature of honey is of considerable importance when honey is to be used as an ingredient in candy, for baking, or for similar purposes that require heating to high temperatures. Hence the presence of colloidal substances and amino acids, although they are present in exceedingly small amounts, has considerable significance when considered from this standpoint.

#### Honey to the Front in "Independent Baker"

Just been looking over back copies of the "Independent Baker," a magazine published for the baking industry, and many recipes are noted. The acceptance of honey by bakers has been fostered to a large extent by the hearty cooperation of the baking papers, and we are surely thankful for this help.

The "Independent Baker" recognized Honey Week handsomely in their issue of November 4, with recipes for jumbles, cakes, and cookies. On the "Question Box" page of the November 4 number, K. Camille Den Dooven gives a recipe for Honey Loaf Cake.

We do not reproduce these recipes, as they are quantity formulas for bakers' use, but if you have a baker friend who is apt to use honey in any amount it is well to get him acquainted with at least two of the baking magazines: The American Independent Baker, 10 Produce Exchange Bldg., New York, and the Bakers' Helper, 431 South Dearborn Street, Chicago, Illinois.



## National Meetings February 27-March 1

The date for the meeting of the American Honey Producers' League and the American Honey Institute will be February 27 to March 1, at St. Louis. We do not have details of the place or the program yet. Many fine highways lead to St. Louis. Beekeepers could make up cars and drive to this meeting, and plans should be started now.

American Honey Institute is working with the chef of the hotel where the meeting is to be held, to get up a real surprise for beekeepers attending. The local committee is doing a fine piece of advance publicity and can assure good attendance for any demonstrations that will be arranged. Everything that can be done will be done to make this a profitable and important meeting.

American Honey Institute plans a number of features, including demonstrations, and it is expected that there will be a number of dairy experts there to tell beekeepers of their work in combining honey and dairy products. A big turnout of beekeepers will make the meeting perfect. — Malitta Fischer Jensen.

## Pennsylvania Meeting Jan. 18-19

The meeting of the Pennsylvania Beekeepers' Association will be held in connection with the Pennsylvania Farm Show at Harrisburg. The show is from January 16 to 20 and will include judging of farm animals, program by vocational schools and by 4-H clubs, a swine program and a meeting of the State Swine Breeders' Association and the conventions of numerous agricultural groups, including farm animals, vegetable growers and horticulturists, tobacco growers, poultry associations, nut growers' associations, society of farm women and beekeepers' associations.

The beekeepers' association meeting will be on January 18, Wednesday, and on Thursday, January 19, in Room C of the Farm Show. Dr. Phillips; Prof. Anderson; Elmer C. Cornwell, of Mansfield; Rev. M. G. Hepner, St. Mary's College; Frederick Hahmann, of Altoona; Charles A. Reese, of Ohio; J. C. Frazer, of Wheeling; Landes Jones, of East Mauch Chunk; Wendell T. Card, of Sylvania; Harry W. Beaver, of Troy; Thomas A. Berkey, of Easton, are on the program for subjects of a varying and interesting nature.

## Kentucky Meets Jan. 24 at Lexington

The Kentucky State Beekeepers' Association will hold its annual meeting at the University of Kentucky in connection with the Farm and Home Convention, starting on January 24, 1933. A program of interest to beekeepers has been arranged.

W. A. Price, Sec'y-Treas.

## Ohio Winter Meeting Feb. 1-2

The Ohio Beekeepers' Association will hold its annual winter meeting in conjunction with the Farmers' Week program at the Ohio State University. The beekeeping program is scheduled for February 1 and 2. The main speakers on the program are the following: George S. Demuth, editor of Gleanings in Bee Culture. E. R. Root, president of the A. I. Root Company; Charles A. Reese, state apiarist, and Virgil N. Argo and W. E. Dunham, of the Division of Beekeeping of the Ohio State University.

W. E. Dunham, Sec'y-Treas.,  
Ohio Beekeepers' Ass'n.

## Beekeeping Short Course at Purdue University, Lafayette, Ind., Jan. 10-12

After an interruption of a year, Purdue University plans another short course, Tuesday, Wednesday and Thursday, on the dates mentioned above. Instructors will be B. E. Montgomery, of Purdue; V. G. Milum, of the University of Illinois; J. E. Starkey, state apriary inspector; Aneta Beadle, of Purdue; W. A. Rushton, president Indiana Beekeepers' Association, and G. H. Cale, of the American Bee Journal staff.

## Manitoba Short Course, Winnipeg, Jan. 16 to 27

Probably Manitoba Agricultural College of Winnipeg offers one of the most comprehensive short courses in beekeeping to be found in this country. The short course this year will be held at the College of Agriculture of the University of Manitoba from January 16 to 27. Instructors will be Prof. A. V. Mitchener of the College and L. T. Floyd, provincial apiarist, and eight other members of the faculty of agricultural and home economics.

There has been a wonderful attendance at these short courses in the past, and we hope that beekeep-

ers in Manitoba interested will plan to attend this year. Expenses are \$5.00 for tuition, and for board and room \$12.00. Write to the Registrar, Manitoba Agricultural College, for further information or for an application form for attendance.

## Empire State Beekeepers' Meeting, Mizpah Hotel, Syracuse, N. Y., Friday-Saturday, Jan. 20-21.

The annual winter meeting of the Empire State Honey Producers' Association is to be held at the Mizpah Hotel in Syracuse, Friday and Saturday, January 20 and 21. It will be an old-fashioned meeting.

Some of the interesting subjects to be discussed will be: "Efficient Methods of Extracting and Advantages of a Central Plant"; "Short Cuts to Production"; "Swarm Control and Requeening"; "Bees in Orchards"; "Outdoor Wintering vs. Cellar Wintering"; "Marketing and Advertising"; "Fair Exhibits"; "The American Honey Institute—Its Help to the Industry"; "Beekeeping in Central Europe"; "Forum on Inspection"; "Buckwheat Honey Pool"; "Food Chamber Hives." There will be prominent speakers from New York State and some from out of the state.

E. T. Carey, Sec'y-Treas.

## Illinois Short Course Jan. 17-19

The short course this year for Illinois will be at the University at Urbana, at the Vivarium Building, Room 104.

Instructors for the short course this year will be: V. G. Milum, P. H. Tracy of the University, E. R. Root, editor of Gleanings in Bee Culture, and G. H. Cale of the American Bee Journal staff.

## Indiana Meeting

A very successful convention was held by Indiana beekeepers at Indianapolis on December 16 and 17. The organization has made much progress during the past year in increasing its membership and getting into better financial condition. The resolutions committee took notice of this result, which they credited to the tireless efforts of the officers. An especially strong resolution was adopted in praise of Secretary Starkey, who has accomplished much for the organization.

There was a good attendance in spite of extremely cold weather, and much interest was manifested in the program at every session. The four-reel moving picture prepared by the U. S. Department of Agriculture, showing the life of the bee, was especially interesting. At the close of the meeting the pictures were shown at an evening meeting of the Indianapolis Nature Club, with an introductory talk by a visiting speaker.

**Southern Beekeeping Conference Has Successful Meeting**

From the standpoint of the number in attendance, the meeting of the Southern Conference at Houston on December 5 and 6 was in every way a success. The Rice Hotel were very generous in their space for the exhibit of honey, beeswax and apiary supplies. It was a fine exhibit of honey and of Texas nectar-bearing flowers.

On the second day most exhibitors donated their displays to be sold for the benefit of the American Honey Institute. Mr. E. B. Ault was placed in charge and before the day was over most of the honey had been sold.

A "honey way" banquet was served, for the first time in the history of beekeepers' meetings in Texas.

A new use for honey was demonstrated by the Orbit Chewing Gum Company, with liberal samples of "Honey Yeast" gum. Two manufacturers of beeswax candles had attractive displays. W. E. Gillespie, of San Marcos, exhibited his new tin bee shipping cage.

The Conference endorsed the movement for honey container simplification and chose Mr. H. E. Coffey chairman of a committee to report to the American Honey Producers' League at St. Louis in February.

The following officers were elected: President, Mr. Robert E. Foster, Gainesville, Fla.; secretary, George W. Bohne, Luling, La. The next meeting of the Conference will be at New Orleans the first Monday and Tuesday of December, 1933.

H. E. Coffey, Secretary.

**December Meeting in Michigan Well Attended**

The west Michigan Beekeepers' Association, which held its meeting at Grand Rapids on December 7, had a wonderful attendance. It is safe to say that at least one million pounds of 1932 honey production was represented, including that of David Running with his eighty tons production. He estimated the Huron County crop as approximately one million pounds.

There were about seventy-two producers present, mostly professional beekeepers, with crops averaging from ten tons upward. The discussions, spirit and enthusiasm were fine. No depression talk was in evidence and it certainly was refreshing. Low price honey didn't seem to depress anyone. All seemed to agree that the way to overcome low prices was to produce more honey. This was the spirit of the professionals. There were some in attendance who were over two hundred miles from home. The optimistic spirit was certainly fine.

A. G. Woodman, Michigan.

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## Quality Bred Italian Bees-Queens

Book your order now for spring delivery. Our prices are low, bees are the highest quality, and our services are always complete. Write us and save money. Special discounts on early orders. Satisfied customers is our motto.

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Package Bees are shipped in new, light, non-returnable cages, fed on pure cane sugar syrup.

Our interests are the same as yours, and we spare no effort to maintain the very best strain of bees in our own interest as honey producers.

We will gladly quote delivered prices. No extra charge for clipping queens. Shipping starts about March 20th. Guaranty—no disease, safe arrival, and satisfaction in every way. Write for prices, special discount on early orders.

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Manufacturers of a complete line of Honey Extractors, one for every requirement. Send for printed matter.

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THEY SATISFY

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The kind WE use in our extensive Michigan Apiaries where WE produce honey by the carload. ALL ITALIAN STOCK

Service guaranteed. Stock bred for honey getting and gentleness. PRICES RIGHT. Let us name you prices on any quantity.

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EMIL W. GUTEKUNST  
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Queens that are a pleasure to work with and be proud to own. Return with stock that has been bred and selected in the North the past 30 years for good winterers, hustlers, gentleness and fine color. One queen 75 cents; dozen, \$8.00. Breeding queens, \$6.00 each.

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about those queens that supersede? Ours are guaranteed against supersEDURE. One customer got 450-pound average; another got 276 pounds; another got 200 pounds; and another got 13,000 pounds from 47 packages.

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Are you satisfied with small returns from your package bees, and what

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You can't go wrong with Brooklyn Caucasians, as we absolutely guarantee them to be purely mated.

Our breeders have been carefully imported from the best Caucasian queen experts in Russia.

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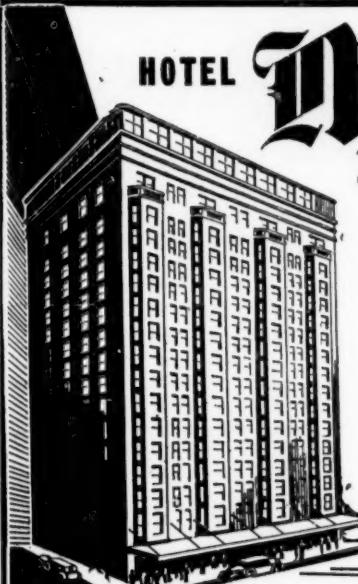
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We have become decided pessimists as to any benefits beekeeping, generally, can derive from price wars such as have recently prevailed in the package and queen industry. Henceforth, we propose to lead the way back to a "Quality First" level by a curtailment in output that will enable us to give more time and personal attention to details that enhance individuality in our products.

We are better prepared than ever to handle your orders, so don't judge us by our modest advertising.

Prices for April and May shipment:

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2-Lb. Packages with Select Untested Queens	each \$1.70
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We guarantee: Freedom from disease. Pure mating of all queens. Prompt shipments, and safe arrival in good condition.

With thanks for past patronage, we extend to you the New Season's Greetings.

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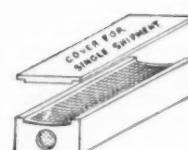
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Apraries

Hamburg, Louisiana

## Crop and Market Report

Compiled by M. G. Dadant

For our January Crop and Market page, we asked reporters to answer the following questions:

1. In what condition are bees going into winter?
2. How is honey selling locally?
3. How is the jobbing demand?
4. What retail price for 5-lb., 10-lb., retail?
5. What price for ton lots, carload?

### Extracted Honey Selling

Whereas a month ago, practically every reporter stated that honey was selling very slowly, there is now quite a sprinkling of reporters who state that it is selling in a fair fashion and many of them state it is selling well. In other words, the retail sales seem to be picking up considerably. This is particularly true in the plains territory where there has been a special effort made on the part of the larger beekeepers to get out and sell their crop rather than await for the jobbing demand to come to them. The people on the western prairies seem to be much more accustomed to the general use of honey and are, therefore, more susceptible to an appeal on the part of the beekeepers through the stores. It would appear that the stores sell it more generally than they do farther east.

### Comb Honey

The writer was much surprised to find so many reporters stating that comb honey was selling slowly. Reports gotten through other sources and from the December cards, indicated that comb honey was moving rapidly and would soon be out of the way. We still believe that there will not be a very large amount of comb honey left and that it will all move off very rapidly before granulation. This, of course, refers to cellophane wrapped and well graded honey. No doubt the poorly or ungraded is having to move out at almost any price to compete with the high quality article.

### Jobbing Demand

There does not seem to be very much quickening in jobbing demand except in a few instances. It would appear that the buyer is still hunting around for the low prices offered by some beekeepers. We do believe, however, that the larger quantities of honey are moving off gradually and that we may look for the jobbers to require additional quantities to fill in their stocks. It is certainly true that many of the western beekeepers are moving their entire stocks without looking to the bulk jobbing demand and it my belief that honey is moving out of the producers hands at least as fast as it usually does when it goes through the jobbers' hands.

### Prices of Honey

Naturally we all know that with competition, there is every sort of a price of honey in the same market and that the well graded honey is having to compete with a terrifically low price on the part of some competitive packs. There are also a number of beekeepers who are packing well and seeking the markets at almost any price to move their honey. As a rule, however, our reporters show that the prices are somewhere near a stabilized basis ranging at a retail price in the east of approximately 20 cents for comb, 90 cents for 5-pound pails and 25 cents for 1-pound jars.

As we go south, we find the price dropping with 5-pound bulk comb selling anywhere from 40 to 60 cents and 1-pound bulk comb at 17 to 22 cents.

Also ranging farther east, we find that the price is dropping somewhat. As we get into Indiana and Ohio a general price of 15 cents for comb, 65 cents for 5-pound pails and 20 cents for 1-pound jars extracted at retail. This drops somewhat as we get into the states of Illinois and Iowa with a little lower price on 5 pounds, perhaps, but other prices ranging nearly the same.

I might state here that among all the states reporting, Indiana seems to have a more generally uniform price than any other. Apparently this is due to the fact that

there are not so many cut-price beekeepers there. Likely, their state organization is active and keeps members informed.

As we get into the intermountain territory, we find prices as low as 10 cents for comb, 35 cents for 5-pounds and 15 cents for 1-pound jars of extracted. The prices range perhaps slightly above this in some instances. In the plains territory, prices are almost, but not quite, as low as in the intermountain with quite a tendency for cut-price on the part of some beekeepers who want to unload their crop.

### Will Honey Move?

Apparently from the reports coming in, the beekeepers in the eastern states and in the entire South, except from perhaps Florida and Louisiana, expect all of the crop to move before the new crop comes in. Some of them are very decided in their opinion that it will move.

As a matter of fact a majority of the reports state that they expect the entire crop to move before another crop is available.

Right here, the writer notices one weak point which has been expressed in these columns many times. Many of our reporters state that they are already out of honey, but only a few of them state that they are replenishing their stocks so as to keep their demand supplied. We believe that if all of the slack was taken up in this way that there would be no difficulty at all in disposing of the entire crop every year. It is the writer's judgment that not one beekeeper out of ten tries to buy honey and keep his local demand supplied when he once runs out. It is true that in many instances, he might not be able to buy on the general market and supply his customers at the same low price that he has been giving them, but he might be able to advance somewhat and still keep the demand supplied. It is a poor rule that won't work both ways and maybe this year if he can help out his neighboring state beekeepers, by taking some of the crop off of their hands, next year if he has a big crop, they might be able to do the same. This seems to be one of the very weakest points on the part of beekeepers who are distributing themselves. Of course this is one of the penalties which is paid for not having a general jobbing distribution such as we have for butter and other articles.

If there is any place where there seems to be a "glut" on the market, it is on the part of fairly large producers throughout the Central West who are not large enough to sell in carlots and who do not get out and try to make a business of selling the honey. Many of these parties are stating that honey is moving very slowly and they doubt that they will be able to dispose of it before the new crop. Surprisingly, some of the carlot producers in the West are reporting good sales locally and expect to move their entire crop without any difficulty.

### Situation in Canada

The reports coming from Canada are all to the good. In Manitoba (there apparently is only one or two cars left in the hands of producers and these will move without difficulty, being held probably for slightly higher prices. Sales show that extracted honey has moved in 5-pound pails in carlots at a price of about 7½ cents per pound with the price at 7 cents per pound for 10-pound pails. I know there are a lot of our American producers who would be glad to get this price.

The export demand is excellent on account of the new favorable arrangements between the British Isles and their colonies and this has tended to make a very optimistic attitude on the part of Canadian beekeepers. It would appear that in Canada, particularly the western provinces, there will be a considerable increase even above a normal. It looks like an excellent chance for package shippers to sell their wares in the Canadian provinces.

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HONEY FOR SALE—Any kind, any quantity. The John G. Paton Company, 230 Park Avenue, New York.

FOR SALE—White clover honey in 60-pound cans. None finer. Satisfaction guaranteed. J. F. Moore, Tiffin, Ohio.

NEW CROP shallow frame comb honey, also section honey; nice white stock, securely packed, available for shipment now. Colorado Honey Prod. Ass'n, Denver, Colo.

FOR SALE—Northern white, extracted and comb honey. M. W. Cousineau, Moorhead, Minn.

WHITE clover extracted honey. Write for prices and samples. Kalona Honey Co., Kalona, Iowa.

HONEY FOR SALE—Keep your customers supplied with honey. We can furnish white and light amber honey at attractive prices. Packed in 60-lb., 10-lb. or 5-lb. tins. Dadant & Sons, Hamilton, Ill.

PALMETTO Mangrove or amber honey in barrels. Sample 6c. Peter W. Sowinski, Ft. Pierce, Fla.

NEW crop honey. Choice sweet clover extracted. Thomas Atkinson, R. 5, Omaha, Neb.

WHITE CLOVER honey, extracted, comb and chunk. One-pound sample 15c in stamps. F. W. Summerfield, Grand Rapids, Ohio.

HONEY for sale from clovers and fall flowers. New cans and cases. Can to carload. Samples free. W. S. Earls & Son, New Canton, Ill.

COMB and extracted in most any form wanted. State your wants. H. G. Quirin, Bellevue, Ohio.

CLOVER HONEY—New cans, \$6.00 case. Sample 15c. Edward Klein, Gurnee, Ill.

FOR SALE—Comb honey, all grades, lower prices in quantity lots. Write N. B. Querin & Son, R. 4, Bellevue, Ohio.

AMBER and light amber, case or ton. E. S. Miller, Valparaiso, Ind.

TUPELO honey; will not granulate. Shipped in any quantity. Anthony Bros.' Honey Co., Apalachicola, Fla.

FOR SALE—One carload amber extracted honey, ten thousand pounds white. Hyde Bros., New Canton, Ill.

HONEY—We sell the best. Comb in carriers of eight cases each; extracted, basswood, buckwheat, sweet clover, white clover and light amber. A. I. Root Co. of Chicago, 224 West Huron St., Chicago, Illinois.

NEW YORK State comb and extracted honey, buckwheat and clover, any quantity, all size packages. Five-pound pails my specialty. Edward T. Cary, Midland Ave. and Tallman St., Syracuse, N. Y.

FANCY white clover comb and extracted, any quantity. F. J. Smith, Castalia, Ohio.

HONEY FOR SALE—Bulk comb and extracted honey in any style container at depression prices. Write me. F. E. Hyde, New Canton, Ill.

FORGET your worries and troubles by cancelling all your debts both ways, everywhere and start over the new year by giving us one-fourth cash, balance delivery from our new special 1933 list. Let's Go, America. Griswold Honey Co., Madison, O., U. S. A.

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CLOVER mixed flowers, \$5.75 per case. Sample 15c. Sylvester Legat, Spring Valley, Illinois.

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FOR SALE—White clover comb. C. Holm, Genoa, Illinois.

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BEEs, honey, beekeepers' supplies. Money-saving prices. Crenshaw County Apyaries, Rutledge, Ala.

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BEST QUALITY bee supplies, attractive prices, prompt shipment. Illustrated catalog on request. We take beeswax in trade for bee supplies. The Colorado Honey Producers' Association, Denver, Colo.

FOR SALE—We are constantly accumulating bee supplies, slightly shopworn; odd sized, surpluses, etc., which we desire to dispose of and on which we can quote you bargain prices. Write for complete list of our bargain material. We can save you money on items you may desire from it. Dadant & Sons, Hamilton, Illinois.

PORTER BEE ESCAPES save honey, money, avoid stings; faster most efficient. Sample 15c. R. & E. C. Porter, Lewistown, Ill.

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WANTED—Wax-working machinery for making comb foundation. What have you? Wm. Peacock, Mapleton, Iowa.

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WANTED—Bees and equipment. Minnesota or Dakotas. Must be bargain. Box 105, Dwight, North Dakota.

WANTED—Bees and equipment, any amount. Hoovel Bros., Jackson, Minn.

WANTED—One experienced queen breeder, and one package man with experience in shipping and receiving, also capable of assuming management of branch business if necessary. Good propositions for the right parties. Give full particulars and references in first letter. York Bee Company, Jesup, Ga.

WANTED to sign up for coming season. Experienced in all departments of bee work. Will take entire charge if necessary. Address, Beekeeper, West Lynn, Mass.

## MISCELLANEOUS

INCREASE honey crop two-fifths. Lhommedieu, Colo., Iowa.

PLANS FOR POULTRY HOUSES—All styles; 150 illustrations. Tells you the type to build for your particular locality. Secret of getting winter eggs, and copy of "Inland." Send 25c. Inland Poultry Journal, 523 Holliday Bldg., Indianapolis, Ind.

THE BEE WORLD—The leading bee journal in Great Britain and the only international bee review in existence. Specializes in the world's news in both science and practice of apiculture. Specimen copy, post free, 12 cents stamps. Membership of the Club, including subscription to the paper, 10/6. The Apis Club, Brockhill, London Road, Camberley, Surrey, England.

THE DADANT SYSTEM IN ITALIAN—The "Dadant System of Beekeeping" is now published in Italian, "Il Sistema d'Aricoltura Dadant." Send orders to the American Bee Journal, Hamilton, Ill. Price \$1.00.

HAVE YOU any Bee Journals or bee books published previous to 1900 you wish to dispose of? If so, send us a list. American Bee Journal, Hamilton, Ill.

## In New York State

This has proved a fairly good season for a honey crop in this locality, as you will be pleased to learn, although the price of honey is rather low. Ground covered with snow today. It was very dry in warm weather, but I have a good spring a few rods from my bee yard and creek runs along across the road, so my bees had water nearby.

Some flow, plenty of amber-colored honey, some of which I am inclined to believe came from maple blossoms, as it has a sort of maple flavor. Plenty of buckwheat and goldenrod. Some wild asters and aster autumn flowers. I live in a valley just two miles from the small village of Swains, on a dirt road.

Edward N. Marsh, New York.



### Berry's Reliable Bees and Service

Thirty-nine years of selective breeding. Pure, three-banded Italians only. Low prices. Write us now and get ready for 1933.

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Just send a 1c Postal Card with your name and address (never mind a letter) and we will mail you literature and useful information free. • Set of **Three B. B. Tools** with full instructions how to use them and to prevent swarming, mailed for **\$2.75**. Real advantage to save time, work and produce more honey.

**California Bee & Tool Co.**  
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Photo shows R. R. Helmerichs of Ralston Purina cereal department, who will appear at St. Louis meet.

### Gaspard High Quality Golden and Three-Banded Italian Queens, Package Bees and Nuclei for 1933.

Write for prices. Better prepared than ever to serve you.

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Made of aluminum, with non-drip lip and lid. Not only good for your home, but can be sold to your customers to encourage honey on the table more regularly.

Price 75c postpaid.

Write for prices in larger lots.

American Bee Journal, Hamilton, Illinois

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Accredited and Certified

Thrifty bees are guaranteed to please. Let us quote you our attractive 1933 prices.

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Since 1892. Fort Deposit, Alabama

### Caucasians

Free descriptive circular about these wonderful bees — Send for copy.

**Caucasian Bee Company**  
Repton, Alabama

## Ralston Helps Honey in Diet Suggestions



Besides giving a National Honey Week broadcast featuring honey, the Ralston Purina Company gives honey a great boost by including it in their Ralston Allergy Diet Booklet. This is used by many doctors and dietitians and includes instructions for drizzling honey as well as suggesting its use with Ry-Krisp. During National Honey Week the Ralston House Organ suggested to Ralston salesmen honey as a food and how to use it so they could pass this on to their customers. Surely this cooperation warrants your including Ralston products in your weekly food budget!

Mrs. Jensen first contacted Mr. Helmerichs at the American Dietetic Convention three years ago and Ralston has worked with honey ever since. The above photo shows Ralston and other products of honey cooperators on the Institute pantry shelves at Madison. All these contacts help honey more than words can tell and have played no small part this year in the price honey brought compared with other farm products. Is all this worth your help?

Plan to use the products of honey cooperators in 1933. Plan to have your state and local associations discuss the Institute and its help on their annual programs. Most of all, be sure that your help and that of your neighbors in money or honey is needed to continue this work and no penny is wasted. Surely you can send a few pounds of honey for Institute work to your nearest Institute receiver listed elsewhere in this publication. Do it now!

AMERICAN HONEY INSTITUTE

417 North Few Street

Madison, Wisconsin

### "EAT HONEY" STICKERS

To paste on your letters, envelopes and packages.

A CONSTANT HONEY ADVERTISEMENT  
White letters on  $\frac{1}{2} \times 2$  red paper — "Eat Honey" — Gummed for use. One thousand, 40c.  
One hundred, 20c. Postpaid.

AMERICAN BEE JOURNAL :: HAMILTON, ILLINOIS

## The POSTSCRIPT

GOSSIP ABOUT THE OFFICE IN THE MAKING OF THE MAGAZINE

At last year's convention I appeared on the Iowa beekeepers' program with a talk on "Future of Disease Control." Since Paddock published the digest of my talk in the Iowa Bulletin, several inspectors have jumped on me for saying that no progress has been made in disease control in fifty years. I certainly had no intention of knocking the inspectors. I worked at that job for five years myself and know what hard and thankless work it is. Of course we are inspecting more bees, burning more bees and spending larger appropriations than we did fifty years ago. The fact remains, however that the first method of treatment of bee diseases was burning and we still regard that as the only safe plan to recommend.

If these statements are accepted, I still fail to see where we have made much progress. Disease has spread over nearly the entire country, and nowhere do we dare allow any rest with our inspection service.

The depression is causing many farmers to pay more serious attention to their bees. Whereas forty years ago bees were a common farm activity, the recent tendency to specialization has removed them from most middle western farms. Now it is the diversified farm which is in the most comfortable circumstances. In a friendly letter from E. R. Root, as a result of my comments in the October issue, he comments on this fact. He states that in not a few instances bees are the only means of the farmer by which he can pay his taxes.

E. G. Carr, the New Jersey state apiarist, steps on me for boosting the Caucasians. He says that they build combs between the top bars, glue up the entrance with propolis, and some of them do a most thorough job of stinging. He adds: "I consider Caucasians for this part of the country nearly as much of a curse as American foulbrood. I consider the boosting of this race of bees a most unfortunate occurrence. I have never handled Cyprians, but if they can sting as badly as Caucasians, they certainly deserve the prize."

Say, Brother Carr, can it be possible that you have some hybrids which are responsible for damaging the reputation of the Caucasians? You are the first correspondent who accuses the Caucasians of bad temper. We all acknowledge their tendency to use too much propolis, but their good qualities may compensate for that.

With reference to the editorial in the December issue, Dr. Rosen writes to say that in his opinion there need be no fear that fruit growers will use arsenate in the blossom spray. While it may be necessary to use Bordeau mixture to spray, while the blossoms are open, to control fireblight, he does not expect fruit growers to attempt to control both blight and moth with one spray. He suggests that under present conditions there is more danger that they will not spray at all.

J. J. Wilder writes that in his part of the South the past season was a failure and things look gloomy for the bee man. He says that they are eating fish and oysters and that they are mighty fine. He says that just now we all need the spirit of boosting to cheer the respondent.

Prof. A. V. Mitchener, of the Manitoba College, writes to commend the editorial regarding confusion of terms relating to honey in the December number. Mitchener doesn't like the terms candied honey, granulated honey,

crystallized honey or strained honey. He suggests that if we call it liquid honey and solidified honey we would soon displace all those terms together with extracted honey. Since they are already talking of solidified honey in Canada, that would be nothing new, but in this country it would add one more name to an already too long list. It is not so important what word we use, but it is desirable that we all use the same one and thus avoid confusion.

H. J. Link, of Indiana, says that something must be done to reduce the cost of public business before prosperity can return. After paying taxes amounting to \$400 on his beekeeping equipment in a poor season when the total returns from his bees were only \$900, little was left for the owner above cost of help and operating expenses.

A well known honey buyer says that the quantity of white clover honey now coming to market is small compared to former years. Honey from sweet clover, or melilotus, is rapidly replacing it in the market. Fortunately, sweet clover has a much wider range than our former chief dependence and at the same time yields nectar more freely. Since sweet clover is often called "white clover" also, there is some confusion in the names. If we call the one "Dutch" clover and the other "Sweet" clover, we will avoid this misunderstanding.

Sweet clover has been a subject of never failing interest to the beekeeper for a half century. Read the old bee magazines and take note of the large amount of space devoted to it. In those days the public regarded it as a weed and the beekeeper planted it when nobody knew. Now it is a favorite farm crop, but the beekeeper is as much interested as ever. When we print a sweet clover story with some new fact, as on page 12, where Scullen tells of the disease-resistant strain, or about the new alpha clover in the December issue, we get so many letters that there can be no question about the interest.

Interest in the large hive continues to grow, slowly but steadily. The article on page 14 indicates also the interest in cut comb honey.

That story of honey on the sales ship on page 15 makes one wonder whether our honey can be sold in the Central and South American countries. Their honey has been coming into our markets, but very little has gone in the other direction.

When first I knew C. P. Dadant, his grandchildren were little tots. Now the great grandchildren hold his attention, yet he himself is not much changed. Although in the eighties, he still looks confidently to the future. They say that advancing age is evidenced by the tendency to live in the past. I would like to look forward to growing old as gracefully as the boss. His article on page 17 started my thoughts in that direction.

Corkins makes a new suggestion on page 20 when he says give top entrances as well as bottom where there is danger of heavy snow in climates without severe temperatures. Would not this result in a draft and offer a real danger? The case reported last month, where the bees died in the cellar when both tops and bottoms of hives were removed, makes me cautious about untried methods.

Frank C. Pellett.

# PACKAGE BEES

In buying packages, if you get good young queens that have been properly reared, Baby Bees, prompt shipment, bees in good condition on arrival, courteous and honest dealings, there is nothing more that you would want.

## QUEENS

Our queens are reared from the best possible breeding stock obtainable and the greatest possible care is given them from the time the egg is laid until the queen is sent you. Our twenty years' experience in rearing great numbers enables us to rear the very best for you.

## BEES

We are located at all three places where colonies do not become populous too early, but rather have to be stimulated to be full of Baby Bees in time to ship you.

## PROMPT SHIPMENTS

All these years every time we delayed an order it has been a source of regret to us, and this has made us bend every effort to improve our methods so we could make prompt shipments. If any shipper is able to ship, we are going to ship promptly. If we do not ship on time we are going to advise you.

## CONDITION ON ARRIVAL

Our extremely light, well ventilated cages, properly handled, will put them to you in 100% condition. Our losses have been less than 1%.

## HONEST DEALINGS

We have been dealing with you beekeepers for 20 years. We have tried to be honorable in each deal. If you can find anyone that we have not been honest with, please write us, as we want to make the wrong right now.

## STILL FURTHER

After we have done this we want you to succeed with every package and queen that you buy. If there is any way that we can help you, we will be glad to. We would be glad for you to write us of your success, and especially of your failures. We are glad to furnish instructions for installing and any advice that we can. Let us quote you on your requirements.

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Wanted: Ten thousand beekeepers to rally to the support of the American Honey Institute.

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**THE STOVER APIARIES**  
TIBBEE STATION, MISSISSIPPI

# The AMERICAN BEE JOURNAL

*Established by Samuel Wagner in 1861*

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**The Oldest Bee Journal  
in the English Language**

FEBRUARY, 1933

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# Dadant's Crimp-Wired Foundation

## Compare Its Strength!

Each sheet made of pure beeswax, just as your bees make it; each sheet reinforced with nine crimped-steel wires with wedge hooks at the top to hold securely in your frames; cell bases and side walls as accurate as machinery can make them.

Strength enough to make your combs last as long as combs are used. You may be proud of them, for brood or for honey. You may be sure of them, honeyflow after honeyflow; in extreme hot weather or in cold.

When you melt combs from Dadant's Foundation, they yield only beeswax. You can depend on them throughout the years. Each sheet inspected and tissue packed by hand in corrugated dustproof cartons to reach you ready to use.

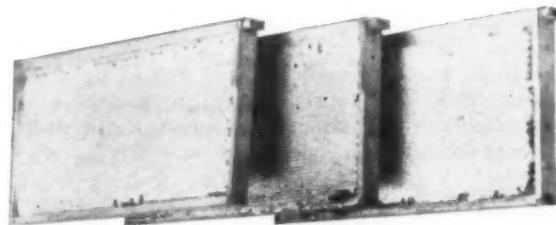
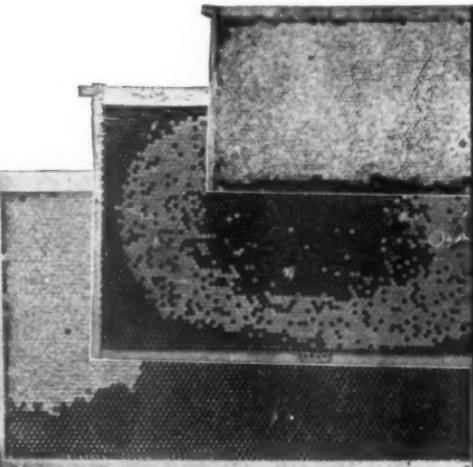
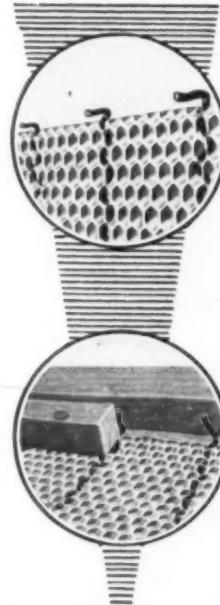
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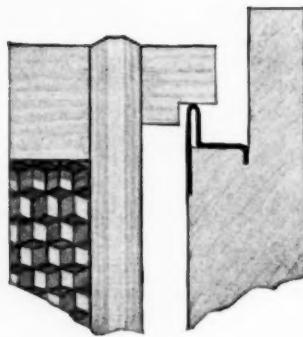
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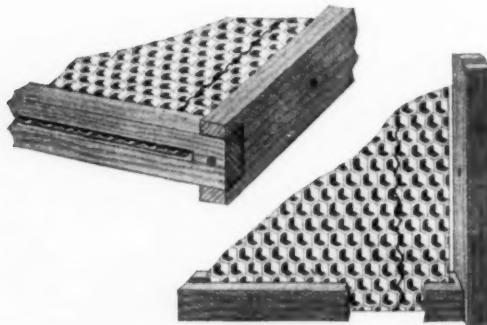
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Showing patented notch under top bar which provides end spacing without use of obsolete staple.



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Not since 1912 have honey producers been able to buy Lewis Beeware at such low prices, but we at the Lewis plant do not feel that these prices tell the most important story. It seems to count more that in Beeware you find devices that save hours of time through using such items as the Style 36 frame pictured at the left. No frame has ever been worked out in our plant, with the help of large producers, that saves so much time in setting up. Before this frame was made we asked many large producers what item cost them most in time, and nearly all replied: "Setting up frames and putting in foundation." The 36 frame is the answer. No end spacing staples required because of construction. End bars lock into position before they are ever nailed into place. Heaviest wedge supplied on any brood frame catches and holds forever

the crimps in Dadant's Wired Foundation. The slotted bottom bar allows the foundation to hang free, yet the foundation fits the frame so the bees may firmly attach it to all four sides, doing away with "pop holes" and waste drone comb. Is all this worth while in saving time and loss for you?

Remember what a nuisance it used to be to try and drive staples into end bars? Pounded your fingers and seldom got the pesky staples in just right! Either they went in too far and didn't properly end space the frame or they didn't go in far enough and the frame would bind endwise when put into a hive body. No need to worry about this any more. Just use Lewis Style 36 frames; or, if you prefer long top bar style, ask for Style 35 frames, for which no end spacing staple is required either! Just take one of these Style 36 frames and set it into a brood chamber and see how it almost finds its own position between the metal rabbets with so little effort on your part. You will see why this frame has become so popular and why its sales have increased each year.

Besides this convenience in preparation and use there is also a convenience in being able to get Lewis Beeware at our catalog price from dozens of dealers scattered from the Rockies to the Atlantic. The name of your dealer is on the 1933 Lewis-Dadant catalog cover. If you did not receive a 1933 catalog, just drop a postcard to the G. B. Lewis Company at any one of the five addresses shown at the bottom of this page. This 56-page showing of up-to-date equipment will be ready within a day or two after this advertisement appears. Just drop us that card or let us help you with your beekeeping problems, without charge. We can only succeed if you do too.



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